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# LAND ECONOMICS

a quarterly journal of  
PLANNING, HOUSING & PUBLIC UTILITIES



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Rate of Return and Value of Money  
in Public Utilities

*Walter A. Morton*

Oligopsony in the Wisconsin Tobacco Industry

*Henry H. Bakken and Willard Mueller*

The Land Settlement Program of Finland

*Kaarlo Uolevi Pihkala*

*Also*

BOOK REVIEWS AND OTHER TIMELY ARTICLES

VOLUME XXVIII, NUMBER 2

MAY 1952

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# AMERICAN ECONOMIC REVIEW

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March 1952

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VOLUME XXVIII  
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## Rate of Return and the Value of Money in Public Utilities

By WALTER A. MORTON\*

Regulatory bodies are now being asked to allow higher earnings for utilities to compensate for inflation. Should commissions grant this request, or should they ignore price changes and base valuation procedures on nominal cost under the historical cost doctrine? It is held below that the power to regulate should not and does not convey the right to enforce purely nominal valuations on public utilities which, in the event of inflation, tend to destroy the real value of utility property. It is shown, however, that the use of reproduction cost is an undesirable method of attempting to allow for monetary depreciation, that the nominal historical cost doctrine though expedient during periods of stability is inherently fallacious when the value of money changes, and that the policy of adjusting the rate of return to the cost-of-money does not and cannot compensate for inflation. In order to prevent gradual expropriation of utility property in the event of inflation, the rate of return should contain an inflation adjustment which is applied only to the common stock equity. Such an adjustment is not necessary to attract new capital but it is fair and equitable. Under present circumstances, it seems that the stockholders of the average electric utility in the United States would be compensated for inflation by an addition of about .7 percent to the present rate of return. A formula is suggested for computing the price adjustment which might enable regulatory commissions to make a reasonable compromise between extreme positions, provide a workable method of adjustment for inflation, and do justice both to consumers and holders of utility equity securities.

**T**HE rate of return of public utilities is regulated in many states by administrative commissions created by legislatures. Although the commissions must function subject to constitutional limitations as interpreted by the courts, they exercise a wide degree of discretion in which their own views of public policy

can exert considerable influence upon their procedures and decisions. One of the questions which these commissions, if not the courts, must decide is whether regulation of the rate of return must take cognizance of changes in the value of money, or whether such regulation should proceed on the avowed or tacit assumption that it need be concerned only with nominal and not with real values. Shall

\* Professor, Department of Economics, University of Wisconsin.

investors who contribute money for the creation of capital facilities be compensated according to the real value of the money invested, or merely in nominal dollars regardless of their purchasing power? If the reasonableness of compensation can be determined regardless of the value of money, then in the event of inflation, the property contributed by investors can be virtually confiscated. Few would hold, boldly and explicitly, that nominal monetary compensation for the use of capital should be made while real values are in fact destroyed or seriously impaired by monetary depreciation, but so great is the "money illusion" that continued adherence to rate-making procedures which recognize only nominal values might come close to accomplishing this result. It is, therefore, appropriate to inquire whether it is within the power and discretion of commissions to destroy or impair the real value of original investment while maintaining its nominal parity with money. Analysis also needs to be made into the constitutionality, the economic, political, and social desirability of such a policy. Finally, we shall see whether it is possible to find principles, methods and procedures consistent with the best regulatory and accounting practices to keep rates fair and reasonable to the consumer while preserving the real value of investment. Primary attention will be directed to the economic issues and only incidentally to the question of legal power, for the latter can be finally decided only by the Supreme Court of the United States, whereas it is within the ambit of the reader to judge what practices seem wise, fair, and equitable. He may then cherish the hope that these considerations may affect the judgment on their constitutionality.

### *Justification of Regulation*

Control over prices and profits has been justified on the legal ground that the various public utility industries are "affected with a public interest," but were it not for their monopolistic characteristics, no more ground would exist for regulating utilities than for controlling the activities, prices, and profits of agriculture, steel, coal, oil, or many other industries vital to the life, health, and welfare of the American people. The real ground for regulation must therefore be sought in those economic characteristics that make utilities a natural monopoly. Rate control in regulated monopolistic enterprise serves as a substitute for the functions of valuation, allocation, rationing and distribution performed by the price mechanism for industries operating under competition. Its primary aim is to prevent utilities from taking advantage of the monopoly power granted them by the state. Regulation should put the "consumer" in the same position vis-a-vis public utility enterprise that he is in with respect to truly competitive industry where he can buy services without discrimination at competitive prices and profits. Delegation of regulatory powers to commissions was originally intended to insure the attainment of this end. It was not designed to create entirely new rights, duties, privileges, immunities and exposures wholly unrelated to this objective, or to put utility property beyond the protection afforded to other forms by means of valuation procedures which could expropriate such property without compensation.

The competitive model serves as a basic guide to regulation, and rate control can and often is relaxed whenever the pricing of utility services is restrained by competitive forces. We think of competitive prices as fair and reasonable

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because there seems to be no other basis for the determination of reasonableness. Without some such guide we would have to accept the view that some arbitrary power or authority can determine a fair price independent of any reference to market considerations. Like any analogy the competitive rule should not, however, be pursued without modification when it can be demonstrated that deviation from it brings improvement. The competitive criterion is a light which guides the way, not a mandate or directive which limits freedom of action. Since, moreover, hypothetical models may be unrealistic, reliance upon them may prove less satisfactory than rational analysis of the pertinent economic structure. Reason and judgment are preferable in formulation of policy to dogmatic fealty to preconceived economic or legal theories whose application does violence to justice and common sense. Pragmatic policy should not, however, ignore the general principle of equity that in a liberal democracy the burden of proof rests upon those who propose to discriminate against any particular group of citizens. In considering public policy with respect to this matter, we shall have in mind chiefly the electric power industry although the principles derived should, with appropriate modification, also have general application to telephone companies, railroads and other utilities.

### *The Competitive Model*

The competitive analogy cannot be applied simply by direct comparison of utilities with other forms of business because the structure of American industry ranges all the way from pure competition to perfect monopoly, with a broad area of monopolistic competition between the two extremes. Electricity, gas and telephone companies are on the whole substantially without direct competition in

their service areas and come close to resembling pure monopoly.<sup>1</sup> Any particular railroad is subject to the competition of other railroads servicing the same area, and from the competition of other forms of land, water, and air transportation. The gas industry has the competition of other fuels, and gas and electricity also compete as substitutes for some purposes. On the whole, however, rates for electricity at this time can be designed to cover costs and to yield a fair return on the capital without encountering much consumer resistance or competition from other energy sources. Railroad rates, on the other hand, are limited by potential competition, and the same rates may have different results on net income of "weak" and "strong" roads.

Monopoly in a service area reduces the cost of service below a competitive level which included duplication of facilities and services. This is one reason why the simple competitive analogy is not applicable as a rate-making criterion. Regulated rates covering actual cost of service including a return to capital would likely be below strictly competitive rates.<sup>2</sup> As a further restriction upon blind use of the competitive analogy is the probability that unregulated competition in the same service area could not be maintained, even if permitted by law, in an industry such as electricity, operating under conditions of decreasing average unit costs. Because such industries tend toward monopoly, they are called natural monopolies, and attempts to maintain competition in such industries would likely fail, leading to monopoly, or to collusion, or to the chaos of cut-throat competition which would reduce rates

<sup>1</sup> Electric power supplied by central station systems and used in large quantities for industrial production competes with other sources of energy and means of supply such as industrially-owned generating plants.

<sup>2</sup> I.e., competitive private enterprise, not public competition.

to short-term marginal costs. Since this condition could only be a temporary one which would not entice new capital into the industry, it cannot serve as a model for regulation.

The function of regulation is to preserve for the public, instead of for the producer, the benefits arising from legal monopoly without depriving the investor of a competitive profit. The primary test of the fairness of regulative measures is whether they maintain utility profits on a competitive level with capital invested in other industries, allowing for differences in risk. Wherever monopoly lowers operating costs below the competitive level, regulation should insure prices at this lower cost plus a reasonable rate of return. Applying this principle to changes in the value of money, it follows that utility real capital should be protected from destruction by inflation just as the capital of competitive industry. The preservation of real capital, in either case, is not the exercise of monopoly power at all. It is possible both under competition and under unregulated monopoly because physical resources rise in earning power and nominal value during inflation. Agriculture is an illustration of this fact; it is a highly competitive industry, but farm prices, profits and land values, like those in the bulk of industry, have risen greatly in the recent inflation. By comparison with other industry, it is therefore discriminatory to restrict utilities to earnings on nominal values and such discrimination is, furthermore, unnecessary and unrelated to the objective of preventing the exercise of monopoly power.

#### *Inflation and Rate-Making*

Inflation is recognized in varying degrees in the different rate-making processes. Changes in the prices of goods and services enter into the operat-

ing and capital accounts at the time of purchase, and all systems of regulation accept such changes as a final datum whether resulting from inflation or any other cause, provided that expenditures are prudently made at prices determined by dealing at arm's length in the open market. As current operating costs rise, it is admitted, at least in theory if not in actual practice, that rates must be adjusted to cover them. Higher prices also increase the cost of new construction. Both current operating costs and new capital costs are, moreover, largely beyond the direct control of rate regulatory authorities. Since, however, the plant remains in service over a period of years, it must be valued from time to time and a fair rate of compensation determined on these previously-acquired capital assets. It is consequently with respect to valuation, depreciation, and rate of return that a commission's attitude toward changes in the value of money has a bearing on utility rates and profits.<sup>3</sup>

Under conditions of pure competition, non-regulated monopoly, or monopolistic competition, monetary changes will affect selling prices, costs and profits in a manner determined by market conditions. Prices must cover variable marginal costs and, under conditions of high demand requiring plant expansion, will also cover fixed costs and yield a profit. In the free market similar goods sell for similar prices whether produced in plants

<sup>3</sup> By changes in the value of money we mean simply changes in its purchasing power, which is measured by various indexes of prices. There are many different indexes adapted to different purposes which measure the purchasing power of money for different holders. Such indexes are: the wholesale price level, the cost of living, farm prices, raw material prices, construction costs, and many others. If the purchasing power of money is found to be relevant to utility valuation procedures, an appropriate price index must then be found to measure price changes. The precise nature and composition of this index need not be determined, however, at this point. It may be found best to use a combined index of wholesale prices, cost of living, and construction costs. But that is a matter of judgment which does not materially affect the merits of this discussion.

built at low costs or at high costs; regulation aside, houses built at low costs rent for the same price as similar units built at inflated costs, allowing, of course, for individual deviations. Current profits and the capitalized value of old plant both rise with the price level depending upon the degree of competition and monopoly, other market factors, and government tax policy. Public utilities regulated to produce similar price and profit phenomena would have higher rates, higher profits and higher plant values during inflationary periods, and the rate for a given service would be the same regardless of the original dollar-cost of the plants producing it.

Variable costs behave the same in utilities and in non-regulated industry. In both cases, higher costs must be covered by price increases except where offset by load factors and improvements in efficiency. Inflation then presents no special problems of theory with respect to current operating costs and, except in the event of mismanagement, the commission has in substance no direct effective control over such costs and no real choice over rate changes necessitated by them.

It is, however, in the realm of fixed costs that a decided difference exists between regulated and non-regulated industry. In the latter, profits rise and the equity of the concern is revalued upwards in the form of higher prices for the common stocks, even while the plant remains on the balance sheet at historical cost. The treatment accorded utilities differs in both practice and theory in various jurisdictions. Where no allowance is made for inflation, rate of return is based on original money costs. If, on the other hand, an adjustment is desired, it can be effected either by changing the rate of return or by altering the rate base, or by doing both.

### *The Historical Cost Doctrine*

Inflation in the price of new equipment is automatically reflected in the rate base. The vital question which remains is whether the valuation of, or rate of return on, previously acquired plant should also be adjusted for changes in money values. Some states believe they should, and seek to achieve this result by giving important weight to "cost of reproduction." However, another view, which appears to be dominant in "original cost" jurisdictions, is that changes in the value of money, as such, should be given no weight whatsoever, or at least no important weight in the rate-making process. This may state the case too strongly, for in practice a verbal concession is sometimes made to the significance of general price changes, which, however, has no appreciable effect upon the amount of return.

The result is what may be termed the nominal dollar doctrine of public utility valuation. This doctrine appears to be rooted in what is variously designated as the "prudent investment," "original cost," "historical cost," "accounting cost," "investment," "cost-of-money" or "nominal cost" theory of rate-making. It is apparently believed in some circles that disregard of monetary changes, except as these changes influence present money costs, follows logically and inexorably from these concepts.

Regulation by use of "original cost" can mean (1) that the plant account is carried on the books at original cost; or (2) that the "value" of the utility plant for rate-making purposes or the rate of return should be determined at all times by the original historical money cost regardless of change in money values. These two propositions are not identical: for purposes of policy we can distinguish between them. One may believe that accounts should be kept at



historical cost without accepting the public policy embodied in the second proposition. No inexorable logic compels one to accept the view that because the plant is carried at original cost the utility should be permitted to earn only on this cost during a period of inflation or deflation. This is a matter of public policy, not of accounting, nor of logic.

#### *The Power to Regulate*

The *fons et origo* of the nominal dollar doctrine is the historical cost theory of valuation. The original purpose of this theory was to provide a feasible, workable and realistic method of protecting the consumer against monopoly power by keeping accurate records of the amount of capital invested in the enterprise. It was not intended to provide a technique for expropriating the investor. This discriminatory consequent stems rather from interpretation and application of the rule to a price period not anticipated at the time of its promulgation. The phrase "historical cost" though clear to the accountant who uses the dollar as the unit of account is ambiguous to the economist who thinks in terms of real costs and exchange values. If the historical cost theory necessarily implies that nominal dollars as shown in the accounts always constitute the rate base regardless of the value of money, inflation will result in expropriation; but if it means real costs, no such result is necessary.

In a period of stable prices, or even when prices fluctuate mildly with the business cycle, the difference between nominal and real dollars is of little significance. This, however, obviously ceases to be true in the event of permanent major changes in the value of money.<sup>4</sup>

<sup>4</sup> I leave it as an open question to be decided in each case whether at this particular time the price changes that have already taken place are great enough to warrant a change in valuation procedure. This is always a matter of judgment

Since disregard of such changes is not necessary to effective regulation of monopoly power, it follows that a rule holding strictly to the use of nominal historical cost in valuation procedures must be justified on other grounds. The grounds advanced come to three: (1) Utility equity investors are not entitled morally to any more protection than is provided for any other holders of money obligations. (2) Utility stockholders have assumed the risk of confiscation via inflation by rulings of the commissions and the courts favoring historical cost, and are therefore estopped from protesting against its constitutionality. (3) It is not necessary to afford the equity investor any inflation protection in order to attract capital into the industry. By basing valuation procedures on such broad moral, political, and economic grounds, commissions are making public policy regarding the distribution of wealth and income which is not directly related to the task assigned them.

The very fact that the commissions are making these policies, be they good or bad, inevitably raises the issue of authority. Do they have the power under the constitution to decide the basic nature of property rights and by their own decisions to determine whether the utility equity can be destroyed by inflation? No doubt a clear decision announcing adherence to purely nominal values in a case where such adherence had a material effect on the resulting property rights, would be appealed to the courts who would then decide whether the commissions were acting within the bounds of their authority as conferred by the legislature and, if they were, whether it was constitutional to take property by this means. In states

on which differences of opinion can be had. I am concerned primarily with examination of the principle that price changes as such, regardless of size, are to be disregarded in historical cost valuations.

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subject to "fair value" administration, the issue need not arise, but should the courts hold that commissions in historical cost states are within their rights to disregard changes in the value of money, and that they will not be overruled no matter whether they use real or nominal values, then utility property will have different values according to the attitude taken by the various commissions.<sup>5</sup> Commissioners will have the absolute power at their discretion to create or destroy billions of dollars worth of property by their rulings. Utility stockholders who can be reduced to poverty or raised to affluence by commission decisions will acquire a direct, personal, financial interest in the personnel of regulatory bodies. Such a result can hardly be welcome to anyone who desires stable property rights and an orderly functioning democracy.

It is indeed contended that the Hope Case has given very wide discretion to regulatory commissions, so wide, in fact, that, in the event of inflation, they could by using nominal valuation expropriate property without legal recourse. According to this contention, the Constitutional protection afforded by the 14th Amendment varies from state to state according to the attitudes of their commissions and legislatures. Utilities operating in states using the fair value rule of *Smyth vs. Ames* would be protected against inflation whereas those operating in jurisdictions using historical cost in nominal dollars as a rate base might suffer severe losses in real value. If each state has such wide latitude in complying with the 14th Amendment regardless of the

value of money, we could very well have expropriation in one state approved by the Supreme Court and protection of real values in its neighbor also approved by the same court. Such, according to this view, is the logical implication of the Hope Case. It is hard for me to believe that the Supreme Court will sanction such a wide diversity of property rights under the Constitution rather than to rule directly on the issue of nominal versus real value. Avoidance of this issue would be virtual abdication of the power of judicial review.

### *Money and Capital*

One of the difficulties in valuation of utility capital arises out of the mercantilistic confusion of capital with money, the other from the failure to allow for fluctuations in the measure of value itself.

The property devoted to the public service must be measured in some way for the purpose of fixing a rate base. This property may be viewed as a physical quantity whose value is measured in the accounts shown on the asset side of the balance sheet. Its total rises with new acquisitions and falls with accrued depreciation. At any date the total value of this property can be measured (1) by the nominal dollars recorded in the books, or (2) by that amount converted by use of an index number into dollars of the current year, or (3) by its reproduction cost less depreciation. The first method simply requires recourse to the accounts; the last two use the accounts but go beyond them. With constant dollars, there would be no difference between the first two methods of valuation, but there might be a difference between these two and the third. Valuation procedures may choose any one of these three methods or a combination of them.

With properly kept accounts, the book value of assets will correspond to the

<sup>5</sup> Some disparity already seems to exist in the prices of utility shares, based on the method of valuation. At present, shares in utilities subject to fair value rate-making, appear to sell at a higher ratio to book value than those in nominal historical cost jurisdictions. The difference would become more striking in the event of further substantial inflation; it would narrow if prices now remain stable and be substantially diminished in the event of a fall in prices.

total investment made by bondholders, preferred stockholders, and common stockholders, including retained earnings.<sup>58</sup> Total investment in the business will always be recorded, like total property, in terms of historical dollars. Investment as shown on the liability side is therefore a number of dollars, and can be measured by summation of historically recorded amounts or by these amounts expressed in dollars of a base year.

Viewed as an asset, the rate base of a utility is a physical quantity whose value may be measured in the three ways just described. Looked upon as a liability, the rate base is equivalent to net investment expressed as capitalization in terms of dollars and measurable also in nominal or base year dollars. Hence the tendency of those thinking of the left-hand side of the balance sheet is to view utility property as a physical quantity, whereas those who think of the liability side look upon invested capital as a number of dollars, which then leads to the confusion of capital with money.

Money, Adam Smith said, is a part of the general stock, but capital *per se* is not money. Money is barren and produces nothing. The investor contributes money, but what the company wants is not money but money's worth, the equipment that can be purchased. The capital invested in a business is therefore a quantity of economic value. Since utility capital cannot be measured by earning power, it must be measured either as the value of physical things or as an abstract fund of exchange value. It is never, however, simply a number of undifferentiated dollars of unspecified purchasing power. Such a concept can be and is used but it becomes well-nigh

meaningless when the value of money fluctuates.

The money value of physical things may change over time for two reasons: changes in scarcity or in real costs of production, and changes in the value of money. With a stable monetary unit, changes in price would correctly reflect only real changes in the cost of producing a given quantity of physical assets; but, since money is unstable, a change in any given price will be the result of both monetary and real causes. Real and monetary causes both being present in all valuation, it is not a simple matter to separate them out accurately and completely. But that it cannot be done perfectly is no reason for failing to do it at all. Index numbers measure that part of price changes attributable to the monetary factor quite satisfactorily for most practical purposes.

### *The Money Illusion*

The present value of an amount carried on the books as capitalization or as net plant can be measured by converting past dollars into present dollars. This method involves none of the metaphysics of hypothetical plants, and other confusing paraphernalia entailed by estimating reproduction costs. Company records will show the amount invested each year in dollars of that year. As only like quantities should be added, these dollar amounts ought to be reduced to a common denominator before summation. It is accordingly illogical to add together original costs expressed in 1913 dollars, plus 1914 dollars, plus 1915 dollars, etc., up to 1952 and get a sum of undifferentiated dollars which purport to show historical cost. Although this is actually done in accounting, the result is misleading. Reducing these

<sup>58</sup> Subject to minor exceptions.

sums to dollars of a base year makes the resulting sum more meaningful.<sup>6</sup>

The real return can be kept constant only by raising the money return in proportion to the change in the price level. This conclusion is not a matter of judgment or policy but merely one of arithmetic. It is policy to decide whether we shall maintain real values or nominal values. Many commissions have been holding that the same number of dollars should be paid regardless of changes in their values, thus effectively reducing the real return to a level which if not hidden by the veil of money might seem inadequate.

According to this policy which we might designate the dogmatic historical cost policy, the rate base at any time consists of the aggregate number of dollars of original prudent investment, minus accrued depreciation, regardless of the purchasing power of those dollars at the time of investment; and a fair rate of return is a percentage in current dollars also regardless of their value. Thus the compensation of investors is always based on an aggregate of undifferentiated past dollars and is paid in current dollars. An investment of one dollar made in 1929 would be paid at the rate of say six percent in 1929 dollars, 1932 dollars, 1952 dollars and year infinity dollars whose purchasing power might be zero. This version of the original cost doctrine is identical with the money illusion and amounts simply to disregarding changes in the value of money.

#### *Reproduction Cost*

It may appear at first glance that conversion of nominal historical dollars into

current dollars is identical with valuation by reproduction cost. This is not so. The former merely allows for price level changes whereas the latter incorporates these plus or minus changes in real value.<sup>7</sup> In a technologically progressive society real costs<sup>8</sup> are constantly declining and the product is improving. In such a society, which is the one we live in, old plants are seldom reproduced new. The new plants not only have a lower real cost but they also produce output at lower real unit costs. The present real value of an old plant is therefore likely to be less than its present real cost even if "reproduced new, less accrued depreciation" if that is practically, logically, physically or even metaphysically possible.

Because of the presence of both real and monetary factors, reproduction costs expressed in current dollars might be either higher or lower than original dollar costs whether measured in historical dollars or converted into current dollars, depending on the size of the relevant real and monetary variables; it is nevertheless a reasonable presumption that, measured in a stable monetary unit, cost of reproduction in a progressive society would generally be lower than original cost. Because of the continuous improvement in operating efficiency, it is also reasonable to assume that the present economic value of an old plant reproduced new would be less than its present reproduction cost. Present reproduction cost of obsolete identical plant should not

<sup>6</sup> In the absence of information as to year of construction, what does it mean to be told that a plant cost one million dollars to build unless we are told whether they are 1913 or 1952 dollars? What would it mean to a German to tell him that equipment cost a million marks unless he was told whether they were 1913, 1923, or 1952 marks? Yet this is what we do when we show plant account on a balance sheet at nominal historical cost.

<sup>7</sup> Changes in the real value of non-reproducible goods (land) is a function of scarcity. The real value of reproducible goods is affected by changes in real costs because of improved production methods, changes in the proportions of labor and capital entering into a particular product, changes in the relative prices of factors of production, and changes in taxes and other contributions.

<sup>8</sup> By real costs we mean here simply the quantity of physical resources used to produce a given unit of output. In constant dollars, changes in dollar costs would accurately reflect changes in real costs.

therefore be equated with present value of such plant.

With stable money, original cost less accrued depreciation would represent both real costs and depreciated book cost of property. This cost would be the same as present exchange value provided (1) that real costs of production had remained constant and that (2) no obsolescence is constantly occurring as new, more efficiently designed machines are built. Neither of these conditions now exists, so that even with constant dollars book costs minus depreciation would always be greater than present market value under competition.

Under competition, in a progressive society, no firm would therefore reproduce the same physical plant; it would produce a new plant able to provide the same service at lower real cost per unit of output. Where this was possible, the old depreciated plant, operating at high costs, depending on age and amount of obsolescence, would fall in market value to a point below either original cost less accrued depreciation, or reproduction cost new minus depreciation. This is because, under competition, an obsolete plant even if newly produced, would still be unable to yield the same net profit as the newer, more efficient units.

Electric utility plant consists of generating, transmission and distribution equipment. No attempt will be made here to judge the superiority of all currently produced equipment over the older types, nor to draw definitive conclusions regarding the manner in which obsolescence affects total utility plant. We shall merely illustrate the general problem of valuation by considering the so-called reproduction cost of generating equipment as a measure of its current value. Here is a field in which technological advance has resulted in a rapid reduction in operating costs. A present-day steam

generator is so much more economical with fuel than one produced forty years ago that no utility selling electricity under competition could afford to operate this old equipment constantly for any length of time even if it cost nothing. In other words, old equipment "reproduced new" would have only stand-by or peaking value, which might be somewhat more than scrap value. Even at inflated prices for scrap this might be less than original cost minus depreciation. Strictly and logically speaking then, reproduction new of an obsolete, inefficient physical plant would not be undertaken at all under competitive conditions; and if it were, the plant would not be worth its present reproduction cost but the highest of these three: the capitalized value of income (which, if the plant were operating at a loss under competition, would be zero); or scrap value; or stand-by or peaking value for emergency use.<sup>9</sup> Strict application of either the competitive analogy or the cost of reproduction new theory in utility rate-making would accordingly produce fanciful results which would likely wreak havoc with present valuations of that part of plant subject to rapid technological improvement.

Utility property, like any other property, is, moreover, constantly changing in value relative to other goods and services. Thus, the exchange value of utility property might fall because other goods became more scarce, such as farm commodities, in a period of rising population; because of a rise in the prices of other manufactures produced by unregulated monopoly; or because, as just mentioned, changes in technology rapidly reduced

<sup>9</sup> Actual value depends, of course, upon how old and how inefficient the plant is. A new plant would not be built for a few hundred peak hours of the year. For such peaking use an older plant may be worth even more than book cost less accumulated depreciation even if the cost of fuel per KWH is twice that of a modern plant.



the real costs of producing utility property in terms of labor, capital and raw material. On the other hand, utility property might rise disproportionately in price because it was produced under monopoly, or oligopoly, or under conditions of labor supply which raised its production costs disproportionately to other products. In a society where science and technology were constantly improving productive efficiency, real costs of utility equipment would be declining and reproduction costs would be constantly lower than historical cost in terms of real resources. With declining real costs of production and a stable monetary unit, money costs would also decline.<sup>10</sup> Consequently, the application of the cost-of-reproduction formula, with a stable monetary unit, would mean a continual fall in the money valuation of utility property.

Two different methods are used to measure cost of reproduction: the first is to ascertain the actual present dollar cost of reproducing the same piece of property minus depreciation; the second is to ascertain the actual present dollar cost of producing utility property to perform the same service—less depreciation. Measured in constant dollars, these two methods give widely different results in a period of rapid technological changes such as we have experienced in the past

fifty years. Both methods have had judicial support although the dominant one appears to be reproduction of the same plant new minus depreciation.<sup>11</sup>

In valuing property by reproduction cost of the same property the courts have radically departed from the competitive model. Obsolete plant of a competitive firm would not be valued at reproduction cost new but only at capitalized earning power which might well be negative, thus reducing market valuation to scrap value. Any existing firm would be exposed to competition from new firms using the newest and lowest cost techniques. Hence, if kilowatt hours could be sold in the open market like light bulbs or pots and pans, the producer using the most modern equipment would get the bulk of the business by underselling his competitors and still making a profit. The value of the old high-cost generating equipment would be reduced to scrap value long before its useful physical life was ended. It would be economically dead while still physically alive. Under competition, the firms having older equipment would take capital losses and the new firms using the best equipment would be constantly destroying the capital value of old equipment. Under these conditions, obsolescence would be very high and could probably not be anticipated. The utility industry would thus be chaotic in nature unless competition was restrained by means of monopoly or collusion. We conclude that under

<sup>10</sup> The relation between real costs and money costs depends upon the type of monetary stability which is maintained. If the quantity of money is increased to correspond to increases in total output of goods and services, the real costs of goods in terms of labor and resources will be falling, but money costs will remain constant and both money and real incomes will rise. If the quantity of money is not increased to correspond to increases in output, prices will fall, money incomes will remain constant, and real incomes will rise. If, however, the level of prices remains stable, but some particular industry increases its efficiency more than proportionately to other industries, its money prices will fall relative to other money prices. If, as it seems, technological progress has been greater in generating equipment than in other fields, the cost of this utility equipment would have fallen faster than other property, and the money costs of producing a KWH of electricity would also have fallen much more than the money cost of producing a unit of output of other goods in general.

<sup>11</sup> Mr. Justice Brandeis in his minority opinion in the *Southwestern Bell Telephone* case, 262 U. S. 276, 312 (1923) supported the use of a hypothetical plant. Mr. Justice Butler in *McArdle v. Indianapolis Water Company*, 272 U. S. 400, 417-418 (1926) used as a guiding principle the reproduction of the identical property. This has been modified on occasion when original equipment is no longer manufactured or available in the market by substituting other materials and methods in the estimate of value. *Consolidated Water Company v. Malbis*, 275 N. Y. 557, 9 N. E. (2) 961 (1937), and *Texas Midland R. 75 ICC* 1, 41, 118, 177 (1918). Trending of original cost to present prices where reproduction in kind was impractical was supported in the *Capital Transit Co.* 25 PUR (NS) 177 (D. C. 1938).

competition the value of utility property, subject to rapid technological improvement, would deteriorate very rapidly. This rapid deterioration in value is prevented by the existence of monopoly so that the average efficiency of plant in use has, for many years, been far below the efficiency of the newest units, as may be seen from the following table.

TABLE I—AVERAGE B.T.U. PER NET KWH GENERATION

Year	Newest Equipment	Average for all agencies contributing to the public supply	Difference
1924	13,700	26,000 (1925)	12,300
1928	13,000	22,500	9,500
1929	11,800	21,600	9,800
1930	11,700	20,800	9,100
1936	11,300	18,700	7,400
1937	11,000	18,700	7,700
1940	10,750	17,400	6,650
1941	10,300	17,400	7,100
1949	9,400	16,100	6,700

Source: Combination of data from Morehouse, page 24, reproduced on page 103 and his Table 18, on page 65. Edward W. Morehouse, *Regularization of Business Investment in the Electric Utility Industry*, New York: National Bureau of Economic Research, Inc., 1951.

The saving in fuel by use of the best as compared to the average equipment would have been about 1 pound per kwh of generation in 1924, and successively less in intervening years until 1949 when the saving would have been about  $\frac{1}{2}$  pound per kwh.<sup>12</sup>

Taking the minimum figure of a saving of  $\frac{1}{2}$  pound of coal per kwh and assuming a load factor of 60 percent, the total coal consumption would be reduced by 2,628 pounds per year per kw. Assuming a price of coal ranging from \$4 to \$8 per ton, depending on distance of the boiler from the mine, the savings per year per kw. would be approximately from \$5 to \$10. On a 75,000 kw. generator this would be from about \$350,000

to \$700,000 per year.<sup>13</sup> These figures indicate in a general way a current cost of obsolescence which is protected by the historical cost method of valuation as compared to reproduction cost under perfect competition. This fact is mentioned, not because it is wise, economical, or feasible to discard old plant during a period like the present when the demand for power requires full use of all facilities (though it might have been during the 1930's), but merely to show the importance of obsolescence in valuation procedure that really followed the formula of reproduction cost new under competition.

An example of the falling real cost of new electric generating equipment also may be given. In 1925, it cost \$8.55 per kw. for generating equipment; in 1950 the cost was \$21.30 per kw.<sup>14</sup> which, reduced to 1926 dollars, is \$13.50.<sup>15</sup> The cost in constant dollars has therefore risen by \$4.75 per kw. of generating equipment which is equal to 55 percent. It might seem, therefore, that even in constant dollars cost of reproduction of this item is up by 55 percent. But this is not the end of the story, for the 1950 generator is not the same generator but is vastly superior in efficiency.<sup>16</sup>

The 1925 generator used approximately 13,700 BTU per kwh whereas the 1950 generator uses only 9,400.<sup>17</sup> Hence the fuel saving by using the 1950-type generator would be 4,300 BTU per kwh. Assuming a 60 percent load factor, this saving would amount to 67,920 BTU per day or 25 million BTU per year per kw. Converted into pounds of coal at 13,000 BTU per pound gives a saving of 1923 pounds of coal per year

<sup>12</sup> These savings are not the same as net profits. They represent merely reduction in fuel costs. Before these could be carried to net profits, they would be reduced by federal income taxes. There are also other economies.

<sup>13</sup> 60,000 to 75,000 kw., Morehouse, p. 79.

<sup>14</sup> Using BLS Wholesale Price Index.

<sup>15</sup> Morehouse, pp. 77 and 79.

<sup>17</sup> Morehouse, p. 24.

<sup>13</sup> Converting BTU into coal at the rate of 13,000 BTU per pound.

per kw. The price of coal has changed over the years and the price at the boiler includes freight. But assuming a saving of approximately one ton per year per kw., the saving on \$4 coal would be almost \$4 per year, on \$8 coal, almost \$8, by using the latest type generator. At this rate the difference between the prices of the two generators, \$4.75 per kw. in 1926 dollars, would be made up in a year or two, depending on coal prices; and the higher the price of coal at the mine and the greater the distance to the boiler, the greater the urgency to substitute the new equipment.

The improvements in efficiency have, moreover, been continuous year after year, lowering the BTU required to produce a kwh. So what is true of 1925

be measured simply by marking it up to the cost of producing new equipment because the two are not comparable.

The presumptive evidence is that, under a stable price level, the current value of generating equipment now being used would be less than the historical cost. Whatever may be the views of the courts, it is apparent that, from an engineering-economic point of view, using constant dollars, the application of the cost-of-reproduction doctrine to generating equipment under the analogy of competition would produce a much lower rate base than historical cost.<sup>18</sup> The utilities were accordingly fortunate that during the years of the Great Depression they were not forced to follow a cost-of-reproduction basis of valuation which would have reduced valuations drastically, both because of the efficiency factors forcing rapid obsolescence and because the 1930-40 price level was lower than the 1920's. This is something to bear in mind in arriving at decisions regarding present policy.<sup>19</sup>

Some may wish to dismiss the above analysis of valuation by means of the competitive analogy because it is difficult and often remote. But the difficulties are not created by the analysis but are inherent in the reproduction cost method of valuation. These could be sufficient ground for rejecting this formula altogether. When this method has been used it has always been freighted with innumerable assumptions and hypotheses,

<sup>18</sup> In the *Annual Report* for the year 1951, Middle South Utilities, Inc., states: "In spite of rising costs of labor, fuel and materials, production cost of a kilowatt-hour of energy in 1951 was 1.81 mills against 2.06 mills in 1940. Moreover, constant improvement and simplification in the design and engineering of post-war generating stations have resulted in plant investment costs only slightly higher per kilowatt of capacity than for those stations completed prior to World War II. This has been accomplished in the face of rising prices since the earlier period."

<sup>19</sup> Generators, although an important part, are of course not the whole of utility plant, and no inference is made here regarding the result of subjecting other forms of property to this kind of analysis.

Year of Manufacture	Average BTU per Net KWH Generation	Incremental Gain
1924.....	13,700	
1928.....	13,000	700
1929.....	11,800	1200
1930.....	11,700	100
1936.....	11,300	400
1937.....	11,000	300
1940.....	10,750	250
1941.....	10,300	450
1949.....	9,400	900
	7	

Source: Morehouse, p. 24.

equipment compared with 1950 is also true of any year compared with subsequent years, the margin of difference simply being smaller as the length of time is decreased. The old generators would be worth much less than historical cost in constant dollars if valued by the imputation of current value under competitive conditions. Should we seek present value of an old plant by marking it up 55 percent to cover higher reproduction costs, we must then turn about and deduct enough to compensate for obsolescence. The net result would show rapid value deterioration. In brief, the present value of old equipment cannot

quite often remote from reality. I have simply introduced the additional effect of falling real costs and obsolescence in a progressive society, and no one can deny that these are real and important factors. I am not here contending for cost of reproduction as a method of valuation. Indeed, I believe it should be rejected. My purpose in showing how it must be applied is not to perfect its use, but to demonstrate it as undesirable from the viewpoint of all parties, consumers, investors, utility management, and regulatory commissions. What I have tried to show is that, if cost of reproduction is to be used for valuation purposes, it ought to be used correctly and that a correct use must evaluate the total effects of technological advance and other real factors in addition to purely monetary changes. If, as I believe, utility valuation should allow for changes in the value of money, it is much simpler to do this directly while using the investment theory, and not through the back door of reproduction cost.

#### *Valuation in Deflation*

Let us now turn to the effects of deflation on utility valuation. During a period of falling prices, historical cost will be higher than either cost expressed in current dollars or reproduction cost. Reproduction cost will be lower than historical cost, expressed either in nominal or current dollars, for two reasons: the fall in prices, and the above-mentioned tendency of technological change to reduce real costs of new equipment. All classes of utility security-holders benefit from deflation by the use of nominal historical cost because their money income remains constant while their real income rises. During deflation, little outcry is made against nominal historical cost by utility owners in favor of either current costs or reproduction cost. The latter valuation doctrine originated with

consumers during the period of falling prices in the last part of the nineteenth century and was espoused by William Jennings Bryan appearing for the State of Nebraska in the case of *Smyth v. Ames* in 1898.

During a period of falling prices the use of either reproduction costs or current dollar values as a rate base will throw the entire shrinkage in operating profit on the common stockholders. Because of fixed charges, the fall in net income available for the common stock will be greater than the fall in operating profit and also greater than the fall in prices. The real income of the equity interest will accordingly be reduced.

Interest coverage will be reduced but not the amount of interest paid unless the utility valuation is reduced enough to cause default. Under a policy of adjusting the entire rate base to the change in prices, the bondholder can never gain; he can only lose. He gets no more during inflation and may suffer default during extreme deflation. Short of this, however, the bondholder (and preferred stockholder), whose money income remains constant, gains in purchasing power during deflation. The gains accruing to the fixed income securities are not, it should be remembered, the result of valuation policy, but simply because the dollar buys more.

Because the common stockholder trades on the equity, the leverage exerted by fixed income obligations would always tend to multiply the effects of a general rise or fall in valuation applied to the entire capitalization or rate base, causing earnings of the common stock always to rise or fall more than the percentage change in valuation.<sup>20</sup>

<sup>20</sup> A simple illustration will make this plain. Supposing we have total operating income of \$100 and bond interest and preferred stock dividends of \$50, common stock earnings will be \$50. Then let total operating income rise to \$150 and common stock income will rise to \$100. Let total operating income fall to \$50, and common stock earnings will fall to zero.

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*Valuation in Inflation*

No theory of reasonable value can in itself protect a utility from commission failure to adjust rates in line with the rise in operating costs during a period of inflation. During the postwar inflation the electric utilities operating under decreasing costs have not been hurt as much by the regulatory lag as have the telephone companies and the railroads.<sup>21</sup> The basic reasons for this lag are administrative and psychological. By well-established custom commissions give full consideration to all evidence and hear protesting parties, which usually takes considerable time. The psychological reason is found in the anti-inflation attitude of the entire community of which commissions are a part. They hope to resist the price rise and are hesitant to admit it as an accomplished fact, or in any other way to aid the inflationary spiral. By the time that inflation is fully recognized, costs have risen faster than revenues and earnings have fallen. If inflation continues in the future, commissions will have to grant temporary relief in the form of surcharges or other temporary rates while considering final action. Otherwise, the actual return may be kept below a

reasonable level simply by the lag and without intention, regardless of what theory of valuation is adopted.

During an inflationary period, valuation in current dollars will be higher than historical cost. The result of valuation in terms of reproduction cost is, however, not so apparent because the rise in the price level might be offset by falling real costs of reproduction in the sense already explained. A great and rapid price rise will outpace decreased real reproduction costs; a minor rise in prices, on the other hand, may not be great enough to offset it. It is important to realize these limitations because it is often assumed simply but erroneously that, during any period of rising prices, reproduction costs will necessarily be higher than historical costs.

A stable rate base and hence stable earnings during inflation, as produced by the use of nominal dollar valuation, decreases the real income of all security holders. If, on the other hand, the rate base is raised *pari passu* with price inflation, total earnings will rise and, fixed charges remaining constant, the common equity will be enlarged more than proportionately on the leverage principle. Fixed income groups will lose real income because of depreciation in the value of money, though not as a result of valuation policy, while the common stockholders will gain in both money income and in real income solely as a result of valuation policy.

Utilities as a general rule trade on the equity very heavily, bonds and preferred stock varying from 50 percent to 75 percent of total capitalization. The average capitalization for Class A and B electric utilities in the period 1937 to 1950 consisted of bonds, 47.7 percent; preferred stock, 14.40 percent; common stock equity, 36.9 percent. A policy of raising the entire rate base in proportion

<sup>21</sup> Mr. J. M. Symes, Executive Vice President of the Pennsylvania Railroad Company, in an address entitled "Defense and the Railroad Problem," Nov. 6, 1951, says: "Let me offer an example of what the lag in procedure for rate relief means: In the years following World War II there have been a number of applications for increased rates, partially to offset inflationary cost. But on the average, a year elapsed from the time the applications were filed until relief was actually granted. During those lags, those waiting periods, we were deprived of nearly 400 million dollars in revenue on the Pennsylvania Railroad alone; revenue so sorely needed to improve, maintain, and expand our plant to meet the challenge of the future." Mr. Symes states that one of the reasons for this lag is that "regulatory authorities give much weight in their decisions as to whether increased rates might drive rail traffic to competitive forms of transportation and thus adversely affect net income to a greater extent than increased rates might improve net income. I say that should not now be a consideration of regulatory authorities." While electric utilities have been subjected to the regulatory lag, they do not suffer from a fear of losing revenue through higher rates since the demand for electricity is little affected by any increase in rates that could be presently contemplated.



to the rise in the price level would give the equity holder an economic interest in favor of monetary depreciation. Such a policy would not only maintain the purchasing power of his own investment but would also give to him the purchasing power lost by the fixed income securities. Their loss would be his gain; he would become wealthy as they became poor. Certainly such a situation, even though it exists to a somewhat lesser extent among industrials, is not something that society should willfully promote by deliberate policy. We should try, so far as possible, to maintain interest in price stability without deliberately sacrificing any group to inflation. It is not desirable to strengthen the powerful forces driving toward the destruction of the dollar and the expropriation of fixed income investors. Certainly the stockholder of utilities needs protection against expropriation, but such protection should not make him a beneficiary of inflation nor create an economic interest which runs counter to that of society as a whole. Any inflation adjustment should be limited to the stockholders' equity and to such other securities, if any, which might be issued with a yield adjusted by contract to fluctuations in the value of money.<sup>22</sup>

### *Fallacy of Nominal Dollar Doctrine*

The nominal historical cost theory certainly does not do this. Its appeal is to an administrative simplicity that avoids the necessity of dealing with inflation and deflation as well as with that incubus to regulation, cost of reproduction. To some it appears a perfectly logical and consistent theory and, so long as the price level remains stable or is subject to only minor, or cyclical variations, it would probably be accepted as a useful device by all concerned. This

method of valuation is, however, also justified as a fundamental principle to be followed under all circumstances, and unless it is challenged, it probably will not give way even in the face of a creeping secular inflation which would undermine the real value of equity investment. We ought therefore to consider whether nominal historical cost valuation is really a logically consistent principle, applicable both to inflation and to deflation and regardless of the amplitude of change. If we should find that it applies to inflation but not to deflation, or that it applies to small changes but not to large, then we have at least discovered its quantitative and qualitative limits. A general principle of valuation ought to be reversible, and valid independent of the quantities concerned. Otherwise it becomes a temporary expedient, useful perhaps under some historical circumstances, but not defensible when applied beyond its intended, if not defined, limits.

The future could possibly have in store for us any of three secular trends: secular deflation such as was experienced in the thirty years before 1900; secular inflation such as we have had since 1933; and secular inflation followed by secular deflation.<sup>23</sup>

<sup>22</sup> Although nothing is more susceptible to error than a prediction of the course of business and prices, still some judgment ought to be risked to show the relevance of this analysis for policy purposes. The usual cycles of the inflation and deflation of minor amplitude are of little significance for valuation purposes because they tend to offset one another. A continuous inflation which establishes a higher plateau of prices, on the other hand, creates new relationships and alters the distribution of wealth and income. During the past two decades the movement of prices, though intermittent, has been consistently upward and it does not seem likely soon to be reversed. In view of the already enlarged money supply, and the widely held conviction that a drastic deflation such as would be necessary to restore the 1940 price level would result in severe unemployment and depression, it now seems likely that a significant drop in prices would call for active monetary and fiscal measures to resist it. Because of the belief in the necessity of maintaining full employment by monetary and fiscal policy, we may be in for a period of slow but steady inflation. Some believe that the present structure of society will produce a slow inflation, others that it may turn into a galloping inflation and

<sup>23</sup> I.e., the so-called purchasing power bond or preferred stock with an escalator clause.

Secular deflation would be favorable to utility investors so long as the burden of nominal cost was tolerated by the public. It might, however, soon become onerous as the public compared the steady prices of utility services with the constantly falling prices of other commodities and some political champion of the consumer interest might begin to demand, as in the past, that utility valuations and rates should be deflated. In modern times the public would probably deflate by use of a price index rather than by asking for cost of reproduction.

The equity investor has already lost through secular inflation, and should inflation continue he will lose even more. In the event of a steady 10 percent per annum rise in prices predicted by some, his real investment will soon disappear. Once established as a sound principle, it is difficult to see how, at any particular time, after a 10 percent rise in prices, the nominal historical cost theory could be suddenly abandoned. Each annual loss, though too small to call for repudiation of the nominal cost principle, would ultimately add up to virtually complete confiscation of original investors.

rapid depreciation of the currency. Although the avowed policy of government is against further inflation, there is no assurance that conditions will be created to bring about this result. On the contrary, the international situation may compel an unbalanced budget; and if this source of expenditures is curtailed in a period when business slackens off, workers, farmers and businessmen may call for greater expenditures to maintain wages, prices and the national income. These are all possibilities; they are certainly not inevitabilities.

My own view is that a return to the prewar price level is extremely unlikely within the next decade but I also believe that further inflation is not necessary and that it can and should be resisted by all means at our disposal, including the repudiation of those so-called full employment theories and their correlative monetary and fiscal policies whose basic philosophy is inflationary. The ultimate result of the practice of these doctrines, though not their purpose, would be the destruction of the value of money. These ideas are now so well entrenched academically, socially and politically that it will be difficult to dislodge them. All the more is the reason why we should not willfully expose any important sector of society to their destructive effects. See "Trade Unionism, Full Employment and Inflation," Walter A. Morton, *American Economic Review*, March 1950, p. 13-39, and "Keynesianism and Inflation," Walter A. Morton, *Journal of Political Economy*, June 1951, p. 258-265.

To test the logic of the nominal cost theory, let us use an example of a hypothetical plant operating and expanding through a period of vigorous inflation followed by a drastic deflation. For if this theory of valuation is a universally sound one, it should be applicable even to such conditions.

Suppose we start with a utility having a net investment of \$100,000,000 (for simplicity, all in common stock) in Pre-Inflation Year O and follow it through Inflation Years I, II, III and Deflation Year IV. It continues to invest inflated dollars in these years to increase its plant capacity by about 10 percent each year. After this investment is made, the pre-inflation price level is restored by vigorous governmental monetary and fiscal policy.

Year	Kw. Capacity Index No.	Total Nominal Net Invest- ment	Price Level	Rate of Return	Amount of Return
		(millions)			(millions)
O	100	\$ 100	1	6%	\$ 6
I	110	120	2	6%	7.2
II	120	220	10	6%	13.2
III	130	1,220	100	6%	73.2
IV	130	1,220	1	6%	73.2

At the end of year III, plant capacity is 30 percent larger than in Year O, but nominal investment has risen about 1100 percent due to inflation. The consumer's contribution and the investor's return remain at 6 percent of the nominal rate base, rising from \$6,000,000 to \$73,200,000. The original investor of Year O receives the same dividend as in the beginning but its purchasing power in Year III has been reduced 99 percent. Now comes Deflation Year IV and prices are restored to pre-inflation levels of Year O. The Commission, however, continues to apply the nominal historical cost theory and the consumer continues to pay in Year IV \$73,200,000 per

annum for a return on investment on property carried at \$1,220,000,000 nominal dollars. In dollars of Year IV, however, it is worth only about \$130,000,000. The real rate of return would be about 60 percent on the basis of current values. If, on the other hand, investment and return were calculated in deflated dollars, the consumer would be paying and the investor receiving about 9 million current dollars in Year IV.

The original investor was robbed during the inflation and now has been restored to his original position by deflation, but the investor of inflated dollars gets a great windfall through deflation. Of course the consumer would not tolerate such high payments for utility services and would soon put an end to the nominal dollar theory. This theory of valuation would therefore be applicable only so long as it expropriated the investor; it would not be applied when it put a great burden on the consumer. No matter how intended, in hard cases it becomes a one-way theory.

It will, of course, be said that this theory does not contemplate major inflation or deflation. If that be true, then the time is approaching when its limits will have to be defined. The BLS wholesale price index shows that prices are now more than double what they were in 1940. If this amount of inflation does not void the nominal cost theory, it is quite unlikely that a further secular inflation is likely to do so. Apparently only a catastrophic inflation which would shake the economic and social structure to its foundation would call for a complete revaluation of utility property. But a gradual secular upward movement of prices would at no point be so spectacular as to call for sudden discard of the nominal dollar doctrine, whose continued application would then constantly erode real

values and by attrition ultimately destroy the value of utility property.

### *Cost of Money*

It is the practice in historical cost jurisdictions to adjust the rate of return to the cost of money which includes interest charges, preferred dividends and earnings on the common stock equity. The return thus becomes a direct function of the height of interest rates<sup>24</sup> rising and falling in the same direction. The guide to the rate of return is not the price level or current cost of plant, but always the cost of money. If the cost of money remains unchanged during a period of price inflation, a commission need not, and according to this doctrine, should not permit a higher rate of return in order to compensate the stockholder. Even should prices rise greatly as they have done since 1933, the rate of return would nevertheless still be reduced if interest rates were in a downward trend because of credit policy, a surplus of investment funds, or a lack of demand for capital. This method of rate-making was not designed to compensate for inflation or deflation and we shall show that it serves no such purpose.

The effect of this policy on the real income of equity owners during periods of major price changes depends on the relationship between the cost of money and the level of prices. Three possible relationships might exist between these two factors: (1) Cost of money varies directly proportionately with the price level. (2) Cost of money varies directly but not proportionately with the price level. (3) Cost of money bears no determinate relationship to the price level. It may remain stable or fall while prices rise or fall.

<sup>24</sup> I.e., interest rates, rates of capitalization as shown by price-earnings ratios, dividend yields and any other factors determining the cost of money.

(1) If the first proposition were correct (as it is not), then the rate of return would automatically rise during inflation just enough to offset the loss in the purchasing power of money. The commissions, by adjusting the rate of return to the higher cost of money, would compensate utility stockholders for inflation, and no other notice would have to be taken of general price changes. Rates adjusted to the cost of money under these circumstances would be compensatory and equitable.

(2) Much the same would be true with some lag and imperfection, if the second proposition were correct. Prior to the Great Depression, there seemed to be a cyclical tendency for interest rates to rise during periods of inflation, but since the cheap money policy was inaugurated in the 1930's, this relationship no longer seems to prevail. Moreover, as we shall see, a permanently higher level of prices is not matched by a permanently higher level of interest rates.

(3) The third proposition as modified below comes closest to the truth. Consequently the money market does not compensate automatically for inflation and, if that is desired, it must be provided by a procedure which breaks completely with the theory that "cost of money" and "fair rate of return" are practically equivalent. Instead, it must openly recognize that a fair rate of return consists of two factors: (1) cost of money; (2) plus or minus compensation for inflation or deflation.

Inflation has many proximate causes, but in the long run its primary cause is an increase in the quantity of money. For purposes of brevity we shall therefore confine ourselves to the effects of changes in the money supply, a problem with which economists have been concerned ever since the influx of the precious metals into the Old World after the discovery of America. From this has

emerged a generally accepted economic theory of the relationship between money, prices and interest rates. We shall state this theory and then apply it specifically to the premises by showing how the stock market and money market mechanisms operate to determine the cost of money.

The general conclusions of economic analysis, briefly stated, and subject to numerous qualifications, are that in the short run the immediate effect of an increased quantity of money is to lower interest rates without much effect on prices. But in the long run an enlarged money supply permanently raises the level of prices without significantly affecting interest rates.<sup>25</sup> Low interest rates can be maintained for considerable periods of time if the central bank continuously keeps the discount rate low, makes bank reserves plentiful and thus enlarges the actual and potential supply of money even while commodity prices are continuously rising. Sooner or later this policy must come to an end if the value of money is not to be destroyed, but it might be kept up for a long time before it produces a crisis.

Something of this sort has happened since the cheap money policy was inaugurated in the United States in 1933. Prices have risen a great deal; interest rates, until recently, hardly at all. On the basis of this economic theory we could conclude forthwith that, in the long run, there is nothing in the market mechanism which raises the cost of money with the increase in commodity prices. Instead, the level of commodity prices could rise

<sup>25</sup> Recent cyclical analysis shows that these propositions must be qualified with respect to underemployment conditions both of a temporary and of a persistent nature. Under these conditions the effect of additional money on interest rates and prices depends on the level of output and employment, the elasticity of prices, the degree of monopoly, and other factors determining the output-price response to monetary policy. Since, however, we are here concerned primarily with permanent policy, we shall subordinate short-run or cyclical effects to long-run tendencies.

fifty percent, a hundred percent or a million percent without having any permanent effect on interest rates.

### *Money, Prices, and Interest Rates*

Nevertheless, before accepting this conclusion based on a general theory, we shall consider in more detail the specific method by which the stock market purportedly discounts inflation. This method may be described in the following five propositions:

(1) During the process of inflation, utility share prices fall. This raises the current cost of equity money measured by price-earnings ratios or dividend yields.

(2) Higher earnings and dividends must therefore be provided for the common shares in order to facilitate new financing at a price which prevents dilution of the existing book value.

(3) In order to provide such higher earnings and dividends, the commission must raise the rate of return to the higher cost of money.

(4) Since all common stock is interchangeable, the new higher rate of dividend is paid on all shares, the old as well as the new.

(5) As dollar earnings and dividends increase, the common stock issued in pre-inflationary times automatically receives a higher dollar return and this compensates the original investor for depreciation in the value of money.

Insofar as the stock market actually operates in the manner just described, inflation would be compensated simply by watching the cost of money and adjusting the rate of return. The validity of this chain of reasoning rests upon the accuracy of its major premise which can be tested only after further elucidation, qualification and analysis. This should show the reaction of stock prices to inflation; the circumstances under which the current cost of money discounts inflation, and whether it is necessary in the post-inflation period to raise money earnings and dividends of utilities to a permanently higher level in order to restore share prices to their pre-inflation level.

Now it must be apparent at once that no single correct answer to all these questions can be given because the discounting of price movements depends wholly upon the extent to which they are anticipated. At any moment in time, investors may expect (a) stability; (b) deflation; or (c) inflation.

(a) A purchaser of utility securities expecting neither inflation nor deflation of commodity prices will pay a price and obtain a yield that embodies neither premium nor discount for these factors. When stable prices are expected to continue indefinitely, interest rates will reflect no anticipated changes in the purchasing power of money. Hence security yields will not reimburse the investors for monetary depreciation, and securities fixed in money income by contract, or by custom, or by decision of a Public Service Commission, will lose in purchasing power if and when prices should rise. What the investor has not anticipated he will lose, and he can only be kept whole by some provision, contractual or administrative, to compensate for the decline in the value of money. Bonds and preferred stocks ordinarily contain no such provision, and their owners always lose by inflation. Industrial shares are protected by the rise in profits whereas the value of utility shares is dependent wholly on the action of regulatory commissions. In no case does the market automatically create protection for any utility security holder unless he correctly forecasts the future price trend and discounts it.

(b) When commodity price deflation is expected, prices of utility stocks with stable earnings will rise and yields fall. If the deflation is properly discounted, the lower yield will give the same real return on a lower level of prices. The consequences of this expectation will not be discussed in detail because though



similar in type they are just the reverse of inflation which we shall now elaborate quite fully.

(c) If further inflation is expected, investors need not buy fixed money income securities until the price and yield are satisfactory. They have the option to buy industrial common stocks, real estate, or commodities, which will presumably rise during inflation. Unanimity of expectation is seldom found because the future trend of commodity prices is uncertain. Differences of opinion, however, make the market and predominant opinion shapes the trend. The action of each purchaser depends upon his forecast. If he expects higher prices, he can refuse to buy fixed income securities except at prices which discount this expectation. When, for example, the price level is expected to rise 10 percent a year, the interest rate will be 16 percent per annum, 10 percent for depreciation in the real value of the capital and 6 percent for interest. Only when continuous inflation is widely expected will interest rates and yields on fixed income securities be raised automatically in this way. In American investment markets, many barriers stand in the way of such a discount, the chief of which are the usury laws and those institutional investors and banks who have no direct interest in protecting the purchasing power of their assets because their liabilities are in terms of nominal dollars.

#### *Discounting Inflation After Korea*

We could show most easily how the stock market attempts to discount inflation by using an hypothetical example which separated out all factors affecting stock prices except one: the expectation of inflation. This procedure will be used below. It makes the analysis simple and uncomplicated, but lacking in the realism of an actual situation. We shall

therefore test the theory that no determinate relationship exists between the level of commodity prices and the rate of capitalization by examining the recent post-Korean inflation.

The decline of utility share prices in the face of inflation seldom is a pure phenomenon of discounting depreciation in the monetary unit. This fall may reflect three factors: (1) discount of a decline in the value of money; (2) fear of the regulatory lag; (3) a basic upward trend in interest rates. The first factor causes a decline in share prices because the fixed dividend would have less purchasing power, thus making utility stocks less attractive for real income. The second represents fear of smaller money earnings and dividends because of the lag of rates behind increased costs. The third factor, an upward trend in interest rates, raises the rate at which income is capitalized; the higher the rate, the lower will be the price of the stock as a multiple of earnings. All of these factors appear to have been operative in the recent inflation. Apprehension of price inflation and of the regulatory lag both operated immediately at the time of the Korean outbreak, whereas the higher capitalization rate did not come into operation until March 1951 when the Federal Reserve System ceased to support the government bond market and interest rates rose. This in turn affected the yields on all fixed income securities. The yield on Moody's utility high grade preferred stocks rose from 3.72 percent in May 1950 to 4.19 percent in November 1951; the yield on Moody's utility bonds (Aaa) rose from 2.61 percent in May 1950 to 2.92 percent in November 1951. Of these two series, the change in yield on preferreds of about  $\frac{1}{2}$  percent between the two dates would be the better measure of the influence of higher interest rates on common stock yields.

Actual yields on common shares since Korea are a result of all three of the aforementioned factors. How to separate each of them out and to show their quantitative significance is a difficult matter, so we shall not try to distinguish that part of the change in yield occasioned by discount of expected inflation from the part due to the feared regulatory lag but shall treat them both as an expression of the cost-of-money for rate-making purposes. The rising trend of interest rates since March 1951 is not, however, a negligible matter, accounting for a rise in the cost of money of about  $\frac{1}{2}$  percent over that prevailing before Korea.

The immediate cause of the rise in utility share yields in the summer of 1951 was the fear of inflation and not a basic change in the rate of capitalization. This is substantiated by the fact that capitalization ratios did not change for bonds and preferred stocks, which are purer reflections of money costs, until the change in Federal Reserve policy to tighter money in March 1951. After this date higher interest rates raised the capitalization ratios, thus restraining the upward movement of utility share prices. The 1952 yield of utility shares of about  $\frac{1}{2}$  percent over the pre-Korean level must therefore be attributed altogether to the higher interest rates produced by the Federal Reserve. This leaves no part of the higher yield now existing as a consequence of an attempt to discount future inflation.

At the outbreak of the Korean war investors first shifted into cash, then into inflation hedge stocks while utility equities slumped severely. This may be illustrated by the rise in dividend yields in percent on Moody's 24 public utilities. These are higher than average grade equities.

	1950	1951	1952
January.....	5.35	5.81	5.52
February.....	5.33	5.64	
March.....	5.30	5.85	
April.....	5.27	5.88	
May.....	5.19	5.85	
June.....	5.60	5.90	
July.....	5.99	5.72	
August.....	5.92	5.67	
September.....	5.82	5.78	
October.....	6.02	5.71	
November.....	6.10	5.61	
December.....	6.00	5.77	

Dividend yields on selected equities rose from 5.19 percent in May 1950 to 6.10 in November 1950 by approximately .9 percentage points. This yield would discount a prospective price inflation of about 17 percent from the levels of May 1950. Let us see how commissions should have reacted to this slump on the "cost of money" theory.

It is of course neither possible nor desirable to adjust utility rates (except during violent inflations) every month or two with fluctuations in the cost of money. In spite of this, let us assume for the purpose of observing operation of the cost-of-money doctrine during inflation, that rates actually were adjusted promptly as soon as a computation of the spot cost of money could be made. A commission applying this rule in November 1950 would have raised the dividend yield by about .9 percentage points and earnings on the equity by about 1.3 percentage points. Had such action been taken then, it would be true that (1) the stock market had discounted the inflation by reducing utility share prices, and (2) that the commission then had readjusted the rate of return upward, thereby raising earnings and dividends and restoring pre-inflation share prices. Should the inflation eventually turn out to be less than the anticipated 17 percent, equity investors would have been overcompensated; if the inflation

were greater, they would have been undercompensated. The degree of compensation would thus depend upon the accuracy of the anticipation and its discount, and its expeditious recognition by a commission.

Let us now proceed with this example into the year 1951 after the fear of inflation had somewhat subsided. Industrial stocks had already risen notably and utility stocks began to recover from their severe slump. The yield in January 1952 had fallen to 5.52 percent. Following through our previous assumption, the commission, having raised rates of return in November 1950 by 1.3 percentage points to allow for higher spot cost of money at that time, would now reduce rates to the post-inflationary lower cost of money, which would, however, be still about  $\frac{1}{2}$  percent above pre-Korea. Except for the change attributable to monetary policy, the earnings and dividends would have been pushed right back down again to their pre-Korean level regardless of the fact that in the meanwhile commodity prices, wages, and practically all other prices were much higher.

#### *Expected and Realized Inflation*

This illustration shows that the discounting of expected inflation provides only a transitory protection to the stockholder against the consequences of realized inflation—a protection which would have disappeared within a year. After that period, the stockholder suffers a permanent depreciation in the real value of his income and assets in proportion to the rise in the price level. Whatever benefit has accrued to him is the result of the monetary policy of the Federal Reserve System which raised the cost of money and the rate of capitalization and will disappear whenever this policy is reversed, or if any other factors cause

interest rates to fall. This result, arrived at by analysis of an actual situation, is just what we were led to expect from the theory described at the beginning of this discussion.

The rate of capitalization is unaffected by the level of prices but is determined by monetary policy and by the supply of and demand for capital. Should basic factors affecting interest rates cause dividends to be capitalized at 6 percent, a stock paying a dividend of \$6 per annum will sell at \$100 whether the price level is 100, 1,000, or 1,000,000. At each price level, furthermore, new stock can be sold at \$100 per share. The original investors who provided pre-inflation dollars will still get six inflated dollars and receive \$100 for their stock whether they sell before or after inflation.

We can now distinguish between discounting anticipated inflation and discounting realized inflation. Only the first can be discounted, not the second. The view that the market cost of money automatically compensates for realized inflation is a simple fallacy arising out of a misunderstanding of the theory of the relation between money, interest and prices. Except for short periods when expected inflation is being discounted, the money market does not permanently raise security yields because of inflation. The old investor accordingly is not reimbursed for realized inflation. He invested deflated dollars and receives dividends in inflated dollars. The new investor suffers no loss (except in the case of further future inflation) because he invests inflated dollars and receives inflated dollars.

New investors can always attempt to discount the prospect of inflation by demanding a higher yield. A bond purchaser can theoretically demand call provisions and interest rates compensatory for expected inflation, but the

common stockholder is in a weaker position than the bondholder under the "cost-of-money" doctrine, because he cannot contract for a higher permanent yield. He can get only a transitory benefit in a higher money dividend during the prospect of inflation which is then reduced as soon as the inflation becomes a *fait accompli*. Under this doctrine the equity investor can be protected only temporarily against anticipated inflation but never against realized inflation. For, when inflation is realized, it is no longer discounted in currently inflated dollars, the "cost of money" falls and the commission, acting upon this fact, again reduces rates, earnings and dividends to the pre-inflation level. The only effect of inflation on the rate of return over a period of time is to raise yields temporarily and thus slightly influence the long-term average.<sup>26</sup>

The fundamental reason for the exposed position of the equity investor is that his investment is fixed, and once his money is sunk, he has no alternative but to accept whatever the commission gives him. When it compensates him in inflated dollars on the nominal amount of his investment, at the post-inflation rate of return measured by current cost-of-equity money, he is not being reimbursed at all for the loss occasioned by inflation, but being victimized by it. No amount of financial legerdemain can

alter this simple fact and it is a snare and a delusion to suppose otherwise.

### *Three Regulatory Policies Regarding Inflation*

Various policies have been advocated with respect to the attitude of commissions toward the equity interest in the event of a depreciation in the value of money.

1. Defenders of the historical cost doctrine hold that no adjustment in the earnings of regulated industry should be made for inflation. The rate base should be historical cost minus depreciation and the rate of return should be governed primarily by the cost of money. This rule should be followed whether prices are stable, rising or falling, regardless of the burden of deflation on the consumer or of inflation on the utility owner. Some hold to this practice as an expedient only because they believe the amount of inflation thus far experienced warrants no adjustment; others accept it absolutely as a matter of principle, regardless of the degree of inflation or deflation. Strict adherents to the historical cost doctrine also believe that the commission has the legal power to formulate and enforce the rule and that it is constitutional and fair. They will admit that in the case of severe inflation strict enforcement of this principle would result in virtual confiscation of utility property by the utility consumers, but they contend that utility

<sup>26</sup> This can be illustrated by the following hypothetical example in which, unlike the actual 1950-51 case already cited, we can by assumption hold all factors, other than the inflation factor, constant: Suppose that in pre-inflation year I, the market price of a utility stock was \$20, the dividend \$1.20 on a 70 percent payout of earnings, the yield 6 percent and the book value \$18.50 which represented the price at which large quantities of new stock could be sold. The commission believes this represents a fair return. In year II, an inflation is expected, and the price drops to \$16.75, giving a yield of 7 percent. The commission raises rates so as to enable the dividend to be raised to \$1.40 and the price of the stock rises to \$20, which still leaves the yield 7 percent. The stockholder appears to have been compensated for the coming inflation. In year III, the inflation comes to an end, and the new investors with inflated dollars begin to drive the stock up to a 6 percent yield at a price of \$23.25. The commission observing the lower cost of

money then reduces rates; this in turn reduces earnings and the dividend is cut back to \$1.20. The stock then falls back to \$20 which was its price in year I. The inflation compensation now disappears. But in year IV an inflation again threatens and we have a repetition of the market experience of year II with the same action taken by the commission. Year V is the end of the inflation, and the situation is the same as described for year III. Now what is the total result of this inflation experience? At the end of year V wholesale prices have risen by say 30 percent above year I. The stockholder got an increase in dividend during year II and again in year IV to compensate him for about a 15 percent depreciation in the value of the dollar. But at the end of the inflation in years II and V, his stock is still worth \$20 and his dividend is still \$1.20 which truly reflects the "cost of money." By year V, after a new price plateau has been reached, he has lost 23 percent of his real income and a like percentage of his capital.

stockholders should be subject to this risk the same as bondholders, preferred stockholders, owners of government securities, life insurance policies, and all others holding fixed income securities. They believe that the constitutional protection against confiscation applies only to confiscation of nominal dollar values and not to the exchange value of the property devoted to the public service.

2. "Fair value" jurisdictions compensate for inflation by giving due weight to cost of reproduction. We have already shown that during a period of stable prices, in a technologically progressive country, this policy would tend to make current cost somewhat below historical cost. In practice, however, reproduction cost is used not to find actual present values but largely as a means of making some allowance for changing price levels. To this extent, reproduction-cost theory gives some assurance to utility stockholders against complete expropriation by inflation. Since, however, there is no clear-cut formula for giving due weight to reproduction cost as compared to historical cost, it is impossible to calculate just what degree of protection is afforded by this rule. How much weight should be given to reproduction cost—100 percent, 50 percent, 25 percent, or 10 percent? Shall it be enough to completely offset inflation, a small part of it, or a large portion? However this may be decided, the reproduction-cost principle provides an inflation hedge, something not found in the other rule. Its application, however, is uncertain, leaving much to informed judgment of the commission.

3. Those who oppose the use of reproduction costs but still believe that earnings should be adjusted for inflation have a choice of two methods: expressing the rate base in current dollars, or raising the rate of return above the cost of money. The same result can, of course,

be achieved by either method.<sup>27</sup> The factors which will determine the amount of the inflation adjustment are: (1) the index used to measure the degree of inflation; (2) the weight accorded to this result; and (3) the decision regarding application of the adjustment to total investment or only to an amount equivalent to the common stock equity. Once these principles are determined, the resulting adjustment can be made either by writing up the rate base or by leaving the rate base constant and increasing the rate of return.

The excess profits tax may be a stumbling block to immediate application of the inflation adjustment. Except for companies whose excess profits tax base is higher than the rate base, because they use the historically invested capital method, earnings at a rate above the 6

<sup>27</sup> M. G. Glaeser, *Outlines of Public Utility Economics*, N. Y., 1927, pp. 479-480. Professor Martin Glaeser would make some allowance for changes in the value of money by making the rate of return flexible. "The most telling argument which has been brought forward by those who champion cost of reproduction, either as the sole standard of value or as an important element in fair value, takes this form. Unless cost of reproduction is taken into account in rate-base determinations, the owners of public utility properties will be deprived of a fair return. Periods of high prices, particularly those induced by war and reconstruction disturbances with their attendant monetary inflation, usually are accompanied by a fall in the purchasing power of that return. A constant monetary return under these conditions represents, in fact, a declining return which is the complement of the decline in its purchasing power. The argument has unquestioned economic merit. It addresses itself, however, to the question of what is an adequate return under such circumstances. Everyone, even the economically illiterate, has learned that the economic value of money resides in its purchasing power, its power in exchange for commodities and services. The rate of return should therefore be made flexible to correspond with some index of purchasing power. If the choice is between a relatively fixed rate of return which is applied to a rate base varying with the cost of reproduction, and a rate of return varying with some index of purchasing power which is applied to a fixed rate base, it is easier to choose the latter alternative. To commit regulation to the cost-of-reproduction standard is sure to have consequences that are far-reaching in unsettling the machinery of regulation and in disturbing the accounting and credit structures of going concerns.

"Administrative commissions should, therefore, take steps to make the rate of return flexible and, particularly, to make the amount available as a return upon the risk capital of public utilities bear some constant relation to the varying purchasing power of the most fundamental of all standards of pecuniary value, the dollar."



percent credit for electric utilities and railroads and 7 percent for telephone companies will be taxed at 82 percent. In such a case, about \$5 gross revenues would be required in order to obtain \$1 of net income after excess profits taxes. Immediate application of an inflation adjustment could therefore be made with least difficulty to companies earning below the excess profits level. If the tax law permitted an increase in the rate base and capitalization to current values for computation of the excess profits tax credit, it would be possible to allow a return higher than 6 percent or 7 percent on historical cost without being subject to excess profits taxes. In view of these facts, companies and commissions might look askance at bringing utilities into the excess profits tax bracket. If they should, each dollar of proceeds from new rates would raise 82 cents in taxes for the government and would thus have an anti-inflationary effect on prices.

The scheme of allowing for inflation via its influence on the cost-of-money is the one whose logic we have already examined. According to this view, earnings must be great enough to attract debt, preferred and equity capital and to maintain the financial soundness and credit of the utility as a going concern. This view was recently expounded before the Wisconsin Public Service Commission in the Wisconsin Telephone Case by Professor James Bonbright.<sup>28</sup> According to this method, the rate base is historical cost less accrued depreciation and it remains this amount under all circumstances. The rate of return is adjusted to the cost of money as affected by inflation or the prospect of inflation. This adjustment is not intended to compensate past investors for inflation; indeed, such a purpose is explicitly denied; it is made

only insofar as necessary in order to attract funds and to maintain the financial integrity of the enterprise. Hence, if an inflation took place which raised prices drastically, the return would not be raised unless such an adjustment were necessary to maintain the company's credit.

Financial integrity, as used in this context, is not concerned with real values. It is a pure accounting concept. Financial soundness exists when bond interest and preferred dividends are earned and paid and equity earnings and common dividends are sufficient to maintain the market value of the stock a little above book value. The book value of each share is its equity interest in the depreciated, original cost of prudent investment aggregated in nominal dollars as total historical cost. Making no allowance for changes in prices not already recorded in the accounts, financial integrity implies maintenance of nominal values, not real values.

In the Wisconsin Telephone Company hearings, Professor Bonbright testified that the A. T. & T. Company would remain financially sound by continuing the annual \$9 dividend with a pay-out of 75 percent of earnings. From this judgment it followed that a return of 6.25 percent was required for the Bell System which computed to 5.75 percent for the Wisconsin Telephone Company. The Commission staff, using slightly different judgment, arrived at a figure of 5.5 percent for the Wisconsin Company and the commission awarded the Wisconsin Company 5.70 percent. The Company had asked for a higher rate of return to compensate its stockholders for inflation in the level of prices.

In his testimony, Professor Bonbright stated explicitly that his estimate of the necessary rate of return took inflation

<sup>28</sup> P.S.C.W. 2-U-3573, 1951.

into account<sup>29</sup> insofar as it affected the "cost of money." The degree of this effect was obtained not from mere opinion or judgment but from observation of the actual behavior of investors who purchased A. T. & T. shares.<sup>30</sup> This rate, it was made clear, was not intended to be an amount which "would compensate investors for the decline in the value of the dollar so that this invested capital should be maintained intact in terms of purchasing power and not merely in terms of so-called nominal dollars."<sup>31</sup>

Counsel for the telephone company read a quotation from Professor Martin Glaeser favoring a flexible rate of return to allow for changes in the value of money.<sup>32</sup> When, in cross examination, Professor Bonbright was asked to comment on this quotation, he reiterated his opposition to compensation of stockholders for the decline in the value of the dollar. He favored flexibility in the rate of return, but for altogether different reasons: "the rate of return should be flexible, adjustable upward or downward in order to measure the cost of maintaining good corporate credit and attracting capital."<sup>33</sup> The \$9 dividend was

sufficient for this purpose, and no other compensation should be made.<sup>34</sup> Professor Bonbright explicitly reaffirmed the position that, as a question of fairness, the utility should not receive compensation designed to maintain the real value of equity securities.<sup>35</sup>

### *Confiscation through Inflation*

What are the results of this analysis? The market mechanism makes no compensation for inflation, and the commission should not; hence, dollar earnings will remain approximately the same, and the real income and the capital value of utility securities must be diminished. With the same dollar dividend, the rate of capitalization remaining unchanged, the nominal price of the stock remains the same regardless of the price level.

We can now quickly dispense with the argument that inflation protection is required to attract new capital. The need for such protection, we must agree with Professor Bonbright, has not been established. But we can go further and say that it cannot be established. However desirable such protection may be as a matter of fairness, it certainly is not necessary. The new purchaser comes with an inflated dollar to buy prospective income in inflated dollars. The old investor is helpless because his capital is already committed; the new investor looks to the present and future, and is not concerned with past injustices. Although original investors may, in fact, lose much real value, the new investor will buy

<sup>29</sup> Q. "In presenting this opinion, have you given special attention to the bearing on a reasonable return of the existing and prospective inflation in price levels and in construction costs?" The witness answered that he had. (p. 876)

<sup>30</sup> Q. "Does this estimate [6.25 percent] make allowance for the inflation factor to the extent that this factor has actively influenced investors in their desire to buy A. T. & T. stock?"

A. "It not only makes allowance, Mr. Torkelson, but makes full allowance for this factor."

Q. "How so?"

A. "Because it accepts as a basis of calculation whatever rate of dividend yield has actually sufficed to motivate investors to make this investment."

Q. "Then it would be a mistake to assert that your own method of estimating the cost of capital ignores the factor of inflation?"

A. "Yes. My estimate of cost of capital accepts whatever rate of return investors themselves find acceptable in view of their option to buy any industrial stocks which they might prayerfully hope to provide them with a hedge against inflation." (Testimony, p. 940.)

<sup>31</sup> P. 927.

<sup>32</sup> See p. 115.

<sup>33</sup> Testimony, p. 1061.

<sup>34</sup> Professor Bonbright's argument and calculations clearly and consistently throughout showed that he allowed for inflation only insofar as it affects the cost of money. Exhibit 34a, P.S.C.W. 2-U-3573, 1951.

<sup>35</sup> After referring to government bondholders, other creditors, pensioners and all others having fixed money claims, Professor Bonbright said: "The millions of people holding these claims would be discriminated against by a standard of utility ratemaking which undertakes to compensate utility investors for price inflation." (p. 949) This discrimination, he contended, would also operate against holders of utility bonds and preferred stocks (p. 950).

shares so long as the yield is satisfactory. This is nothing new. It has always been so throughout the history of regulation. The owner of property has had to appeal to the Courts, not to the market to protect him from confiscation.

So long as the nominalistic historical cost—cost-of-money method of rate-making prevails, nothing stands in the way of continuous expropriation of past investors by means of a fall in the value of money. Furthermore, new inflated dollars will always be forthcoming at a satisfactory current yield, except perhaps during times of galloping inflation.<sup>36</sup> Consistently applied, this doctrine reduces the equity owner to a creditor in perpetuity who has no more protection against loss by inflation than any holder of obligations payable in money. It assumes he has a chose in action, not a title to property. In one respect the common stockholder is put into an even weaker position than other creditors, for the bondholder can withdraw his capital at maturity date and make a new deal whereas the equity investor is committed for the life of the enterprise. He has assumed the role of a perpetual residual claimant to the income of the company; he cannot contract for any specific return but must take whatever is given him without the right to withdraw his capital. If upheld, this theory will transform the rights of property ownership into the rights of a community creditor, capable of being settled by payment of a determinate (fair) money income in legal tender.

All property subject to regulation under these rules is potentially subject to virtual confiscation by commissions for the benefit of the residential, rural, commercial and industrial users of utility services. In effect, the rule could take

the property of investors and give it to other citizens, most of it accruing to the owners of factories, stores and other enterprises which make heavy use of utility services.

Support for the nominalistic original cost pattern does not rest alone on grounds of economic interest and conceptions of equity. A strong ideological resistance to any deviation from this regulatory method is provided by accountants and administrators who find it more certain, more convenient in application, and more favorable to consumers than "fair value" or any similar device which might require a judgment on the more complex issues of exchange value. There is something satisfyingly simple in refusing to go beyond the books and neglecting the more controversial issues of economic value. Simplicity is, of course, a desideratum but we need not be too simple. Great progress was made when utility accounts were kept to reflect actual transactions, showing the dates of purchases and the amounts paid for equipment rather than managerial write-ups, manipulations, and subjective judgments. Any departure from nominalism must rest upon and accept the solid achievement of correct accounting which records the facts of life. We should not return to the metaphysical obscurantism of legalistic and technical jargon about value and depreciation which ignores the elementary truths of accounting science. Willingness to depart from the nominalistic theory will come if and when price movements make it imperative and if a satisfactory theoretical justification and analytical technique can be agreed upon that would make an inflation adjustment seem reasonable and relatively easy in application.

Another support for nominal historical cost exists in the changed atmosphere of regulation. Since the adoption of this

<sup>36</sup> Theoretically, even in such a period, if the yield is also sent a-galloping into millions percent per annum.

formula, the previous emphasis upon fair value has given way to a concept of economic necessity. Instead of giving a utility a reasonable return because it is just, we now ask what rate is necessary to maintain it as a going concern and to attract new capital. Justice is a moral concept, necessity is a power concept. The demands of fairness are not always those of power. We have already shown that a utility will continue to function as a going concern and attract new capital even if no compensation is made for inflation to capital already irrevocably committed. An inflation adjustment is not necessary to maintain the financial soundness and integrity of the concern. So long as necessity is the sole guide to action, the property of a utility can be taken without compensation by means of inflation, provided the will to do so is accompanied by legal and political power. Under these circumstances, holders of utility property can hardly be expected to submit to expropriation without trying to use political power to protect themselves. Within the constitutional framework, political power is after all the ultimate arbiter of all rights to liberty and property.

The erroneous notion that the market somehow automatically compensates for inflation rests on the belief that economic power is capable of protecting itself. In unregulated industry this is true. Any interest having economic power to compel a fair return can exert that power; it does not need resort to the courts. Appeal to the courts under the 14th Amendment is made when the individual is incapable of defending himself against arbitrary action. A utility cannot protect itself against inflation by its power to control the supply of services because that power is limited and circumscribed by regulation. Potential investors can exert some economic power by with-

holding capital, but past investors are wholly dependent upon constitutional interpretation.

The courts can hold that a return may be too low percentagewise. Can they hold that it is too low in purchasing power relative to the real capital invested? It would certainly be ironical for a court to rule under the historical cost doctrine that a 3 percent return in constant \$1 dollars was unreasonable but that a 6 percent return in 50-cent dollars was reasonable. So also would be a ruling, after a period of great inflation, that a 3 percent return in well-nigh worthless dollars was confiscatory whereas a 6 percent return in the same currency was fair and reasonable even though both amounts were a minute proportion of the economic value of the original investment. It has been contended that precisely such a distinction is constitutional because the existence of regulation confers the power upon commissions to make all valuations in nominal dollars. Should this prove to be true, then the power to regulate is the power to destroy.

#### *Legal Nature of Utility Property*

What is in question is the nature of utility property. Property is a legal, not a physical category, and as such its ultimate nature is subject to determination by the United States Supreme Court. In deciding what property is, the court must also ask what it ought to be. Under the due process clause, positive law is thus made dependent upon the ethical law which is called public purpose. Positive law is found in precedent but public purpose is found in the aims, purposes, ideals, and practical workings of our economic, social and political life. It is a product of all of the ideas, forces, and pressures that determine where we now are and whither we



are tending. These come to a focus in specific cases which then constitute the general rule. In settling constitutional questions, the Supreme Court, subject to constitutional amendment, is at the same time the final arbiter of property rights and the ultimate ruler over public policy.

Public policy is made by deciding the controversial issues standing in the vanguard of human progress. Here the past must be reconciled to the future and the dead hand cannot long control what living men will do. It is therefore not so much a question of what legal rights now are as what they ought to be, for the courts must in the end shape a society for just ends and make the law conform. Positive rights and good public policy are not two independent forces. They both originate in a common matrix out of which jurisprudence creates its substance by merging the normative with the categorical.

Conceptions of public policy differ with individuals, with their interests, ideas and feelings, their views of the past and future, their aims and ideals, their psychology and philosophy. It is this which made an English jurist say that public policy "is a very unruly horse, and when once you get astride of it you never know where it will carry you."<sup>37</sup> Professor Commons has said it is unruly because "it lives in the feelings rather than logic, the field of values rather than mathematics." If, however, we are not to retreat from reason, grounds for public policy which transcend personal interests and momentary values and prejudices must be sought, which also give equitable working rules for the future. The appeal must be to reason and equity, not to emotion and to power.

Stable values, and stable social relationships must be founded upon reasonable value and not upon the shifting sands of coercive power.

The contention that some allowance be made for inflation in utility returns is supported by three arguments which, in practice, are intermixed. First, it is claimed that protection against inflation is necessary to sell new stock at a reasonable cost of money; second, that such protection is fair to past investors; and third, that it is a legal right accorded by the Constitution. We have already shown the error of the first contention and we may therefore dismiss it and turn to the other two. Were legal rights wholly independent of fairness, it would be supererogatory to discuss the latter. But we have just shown that equity and right are interdependent concepts and that what is fair is likely also to be found constitutional. Due process having come to mean not only due procedure but also due purpose, it follows that judicial review under this provision is primarily concerned with the substantive quality of economic relationships.

As Professor Commons has shown,<sup>38</sup> the meaning of property has undergone constant change in the Supreme Court. At first the 14th Amendment was construed to protect the individual against deprivation of physical possession and use. Later this protection was extended to its exchange value. The owner of property could not be forced to sell its product at less than a fair price. This view came to serve as the basis for judicial review of utility regulation. After the Civil War, prices continued a downward trend until almost 1900, ending with the *Smyth v. Ames* decision holding that original cost and reproduction cost, among other things, were to be given such weight as was right and proper

<sup>37</sup> J. Burroughs, 2 Bing 252, 1824, quoted by John R. Commons, *Legal Foundations of Capitalism* (New York: 1924), p. 325.

<sup>38</sup> *Ibid.*, Chapter II.



in each case. Then came the gradual rise in prices until 1914 and the rapid rise from that year until 1920. The utilities now contended for the reproduction cost principle and they were sustained by the Court.<sup>39</sup> Throughout this period the Court recognized exchange value of property, not merely nominal values. The Brandeis minority opinion in the Southwestern Bell Telephone case laid the basis for the practice now being followed in jurisdiction adhering to historical cost:

"The compensation which the Constitution guarantees an opportunity to earn is the reasonable cost of conducting the business. Cost includes not only operating expenses, but also capital charges. Capital charges cover the allowance, by way of interest, for the use of the capital, whatever the nature of the security issued therefor; the allowance for risk incurred; and enough more to attract capital."

The cost of money or capital attraction test is in reality a market yield test of the reasonableness of a rate of return. It is recognized that even when a utility is not in the current market for capital, nor likely to be in the near future, it is still entitled to the amount which it would be necessary to pay if it were in the market. A utility cannot be deprived of a fair rate of return under this concept simply because it does not need new capital and because such deprivation could be made with impunity because it would leave service unaffected. Although the capital attraction test is stated as a power concept, it is really an equitable concept, implying that a competitive return is a fair return.

The other important word in the Brandeis formula is "capital." Justice Brandeis states: "The thing devoted by the investor to the public use is not specific property, tangible and intangible

but capital embarked in the enterprise." This could be construed as a decision to eliminate consideration of the asset side of the balance sheet in favor of the liability side. But as we have shown above, with correct accounting it makes no difference which side of the balance sheet is considered because depreciated assets will be equivalent to total capitalization. The meaning and significance of this statement consequently hinges on the construction to be put upon the phrase "capital embarked in the enterprise." Does it mean simply a number of undifferentiated dollars, or an amount of exchange value? If the former, then regulation can ignore everything except the book accounts and base fair return on nominal values regardless of the value of money. If capital means an amount of exchange value, it will be necessary to pay a reasonable return in terms of exchange value on the exchange value invested in the business.

Although the nominal dollar doctrine originated in the application of the Brandeis formula, it is a question of legal interpretation whether it was intended to be so construed. The courts had always protected the exchange value of property and not merely its nominal value, and if they remain consistent with their previous history they will continue to hold that "property," "investment" or "capital" means an amount of exchange value and not a sum of undifferentiated dollars.

Justice Brandeis sought to free regulation from the slavery to physical valuation and the confusing metaphysics of reproduction costs. His followers by identifying historical cost with nominal value are now in unconscious bondage to a nominalistic version of his ideas from

<sup>39</sup> *John W. McCardle, et al. v. Indianapolis Water Co.*, 272 U. S. 400, 1926.

which they in turn must also be freed by a return to real values.<sup>40</sup>

The views regarding nominal and real values may be summarized as follows:

(1) All groups, utilities, regulatory authorities of all schools and courts agree that utilities should be compensated for the "cost of money" and that this rate should be flexible, changing over time with market yields. Such flexibility is conceded to be necessary to attract capital and it is also conceded to be fair and constitutional. (2) Opinions differ on the necessity, desirability and constitutionality of an inflation adjustment. These views may be classified as follows:

#### THE INFLATION ADJUSTMENT

Group	Is it Necessary to Attract New Capital?	Is it Fair?	Is it Constitutional?
Utilities.....	Yes	Yes	Yes
Fair Value Jurisdictions (Reproduction Cost)	Yes	Yes	Yes
Historical Cost (Nominal Value) Jurisdictions	No	No	Failure to adjust is constitutional.
Position of this Writer	No	Yes	See my argument

#### *The Ethics of Expropriation*

Any decision to protect shareowners from loss by inflation must ultimately rest on a value judgment. Many who are deeply concerned with protection of the public interest are opposed to an inflation adjustment on ethical grounds. They believe it to be unfair to the utility consumer and an undeserved gift to the equity interest. In the end, however, the high ideal of moral right which animates these good citizens is to get something for nothing for the community at the expense of the utility stockholder. Although they oppose inflation as evil, they hold that if

this evil must be, it should be made to yield an unearned increment, a windfall profit, to the community as a whole or to some special elements within it. This they aver is fairer than a program aimed to preserve the real value of equity investment.

Inflation is generally inequitable because of its unequal incidence, and it is especially unfair to the creditor class. This injustice cannot be condoned lightly on the supercilious ground that it results from contractual obligations for fixed money payments, because society has an obligation to maintain stable money. In the absence of such stability there is no remedy for this injustice unless the bond indenture is made to provide for money payments fluctuating with the price level. So long as this is not done, fixed income groups are hardly likely to feel much sympathy with the plight of utility shareowners because it is no different from their own. Ownership of various types of securities is, however, not completely differentiated; utility common shares are held by institutions and individuals along with fixed income securities so that inflation protection for stockholders might also offer some solace to an otherwise affronted group.

Under the nominal dollar rule, the beneficiaries of inflation are the utility customers. These obtain the services of utility property without adequate compensation and thus have in effect the beneficial use of such property. They are the recipients of an inflation windfall, a transfer of wealth from investor to consumer. Since bonds and preferred stocks constitute about 63 percent of utility capitalization, an inflation adjustment confined to the common stock equity would give consumers a capital gain equivalent to 63 percent of the difference between book value and cur-

<sup>40</sup> "Intellectual power is measured by its capacity to dissociate ideas traditionally inseparable." Jose Ortega Y Gasset.

rent value of total utility property.<sup>41</sup> Without such an adjustment, they would receive a windfall of 100 percent. A gift of sixty-three percent ought to be enough! Why must it be a hundred percent?

The public, of course, hardly has a moral right to any of the property contributed by investors and, except for the pernicious effects of inflation, no unearned increment would accrue to it. The consumer's gain is exactly equivalent to the investor's loss and the initial distribution of this gain is in proportion to the use made of utility services. Total revenues of Class A and B electric utilities are received from the following sources:

DISTRIBUTION OF ENERGY TO ULTIMATE  
CONSUMERS  
(1951)

Energy sales (in millions of kwh)

Total.....	317,300
Rural.....	8,650
Residential.....	77,200
Small Light and Power.....	57,450
Large Light and Power.....	156,500

Revenue (in millions of dollars)

Total from customers.....	5,640
Rural.....	176
Residential.....	2,175
Small Light and Power.....	1,465
Large Light and Power.....	1,550

Manifestly, no reason exists why industrial stockholders and individual proprietors should receive a large contribution of utility property from its former owners simply because they are the biggest users of electrical energy. Unregulated business obtains higher prices

and profits during inflation as well as benefitting from the losses sustained by their own bondholders. Even if an inflation adjustment were applied only to the utility equity, industrial shareholders and small businessmen would receive an unearned increment on 63 percent of utility property.

The same is true of the farmer. Inflation transfers a substantial block of wealth to agriculture. Farm prices have risen and the farmer has paid his debts in depreciated currency. He continues to pay utility rates based on nominal values and, even if an inflation adjustment is made for the equity portion, he will receive his share of the loss suffered by bondholders on 63 percent of utility property.

Residential owners consist of businessmen, workers whose incomes have risen with inflation, and fixed income groups whose incomes have lagged. All these will participate from the windfall as consumers and lose in their capacity as utility stockholders. This being a large group, the share of each in the expropriated utility property would be quite small.

It may be contended, with considerable merit, that the incidence of lower utility rates is not on the profits of commerce and industry but lowers the cost of their products. These lower costs, under competition, are passed on in lower prices to the consumer who becomes the ultimate legatee of the investor's property. Consumers, however, are also producers who benefit from inflation and their right so to benefit at the expense of utility investors must likewise be demonstrated.

It may be conceded that since the bondholder is bound to lose by inflation, the consumer is as much entitled to profit by his loss as the utility stockholder. We have, indeed, contended against making it profitable for the

<sup>41</sup> An inflation of 10 percent would give the consumer a windfall of 6.2 percent of total utility property; a 50 percent inflation, 31 percent, etc., the degree of the windfall being a function of the amount of utility property subject to valuation in nominal dollars for rate-making purposes and the degree of inflation. At the end of 1952 the difference between current value and nominal value will be \$8 billion; 63 percent of this amount would be about \$5 billion.

stockholder to promote inflation. But what are the grounds for the view that no adjustment should be made on the equity and that the remaining 37 percent of utility property should also be transferred to consumers? The equitable principle is certainly not obvious. It is simply assumed, without reason, that other groups are entitled to every bit of utility property that can be expropriated by inflationary means and that to question this ultimate truth is to cast doubt upon a great moral imperative. That is not to say that some argument, however recondite and remote, may not exist and even be convincing, but simply that the advocates of this inflationary transfer have still to make its great moral value plain and obvious.

The case for an inflation adjustment must be built solely on a foundation of equity. It cannot rest in any degree whatsoever on the false premises of economic necessity because, as we have already demonstrated, no such necessity exists. The effects of direct confiscation must not be confused with indirect confiscation by means of inflation. If the state were constitutionally able to confiscate property directly, or if contractual obligations could be repudiated with impunity, and such practices become common, private investment would break down as it has in communist countries or in others that fail to protect property rights or to enforce the obligation of contract.<sup>42</sup> Here the case against confiscation on the ground of economic necessity is a valid one.

<sup>42</sup> This is not absolutely true because occasional confiscation accompanied by political dissimulation, and sophistic reasoning followed by a spirit of repentance with a promise to be good in the future, together with the lure of large profits might successfully induce new investors to follow with their money in the wake of the expropriated. In his essay on Public Credit, *Political Discourses*, 1752, David Hume, commenting upon the effect of state bankruptcy on the ability to raise new funds, says: "So great dupes are the generality of mankind, that, notwithstanding such a violent shock to public credit as a voluntary bankruptcy in England

It remains basically valid, though not quite as clearly so, nor within such obvious limits, in the case of gradual confiscation accomplished by reducing the rate of return below reasonable levels. If this were done, at least for a time, new common stock could be sold at lower prices which diluted the equity. In the absence of constitutional protection against such dilution, gradual thinning of the equity could continue for quite a while until investors completely lost confidence and brought the process to a halt. Economic necessity stands in the way of simple and direct confiscation in a capitalistic society, but it is weak protection against piecemeal expropriation via an inadequate return, and no protection at all against gradual expropriation by means of creeping inflation. It is the Constitution, not the necessity of raising new capital, that stands in the way of the last two methods of expropriation.

Of these two, expropriation by inflationary means could be successfully accomplished without voiding titles to property or impairing the obligation of contract, without hindering the flow of new capital, or impairing the financial integrity of the utility or its ability to function as a going concern. Destruction of old values by inflation could go hand in hand indefinitely with raising of large amounts of new capital. Under the nominal dollar doctrine, past investments could be impaired and practically destroyed without even slightly impairing the ability to sell new stock. Infla-

would occasion, it would not probably be long ere credit would again revive in as flourishing a condition as before. And tho' men are commonly more governed by what they have seen, than by what they foresee, with whatever certainty; yet promises, protestations, fair appearances, with the allurements of present interests, have such powerful influence as few are able to resist . . . The fear of an everlasting destruction of credit, allowing it to be an evil, is a needless bugbear. A prudent man, in reality, would rather lend to the public immediately after they had taken a sponge to their debts than at present."



tion is pernicious because insidious. The new investor always receives a fair return and a promise of future stability of prices even while the real return of the past investor has been seriously impaired. Only when all hope of future price stability is lost will it become impossible to raise new capital, and experience shows that this eventuality is realized only in periods of hyper-inflation. Raising capital during inflation is all the more possible when the nation pursues an inflationary policy in the midst of continued protestations that it will maintain monetary stability.<sup>43</sup> The more innocent the investor and the more trusting of his government, the more patriotic in his efforts as a citizen to combat inflation, and the more he works and hopes for his country's success, the more likely he is to be duped.<sup>44</sup> He will be fooled, moreover, without any intention on the part of his government or his security dealer to mislead.<sup>45</sup> Inflation is usually not a matter of plan or of intention, but a result of forces beyond the immediate control of citizens and possibly even their government, and no group should be made its deliberate victims.

<sup>43</sup> This is of course what has happened continuously since 1933. President Franklin D. Roosevelt on May 7, 1933 said that his objective was to maintain prices so "that those who have borrowed money will, on the average, be able to repay that money in the same kind of dollar which they borrowed. We do not seek to let them get such a cheap dollar that they will be able to pay back a great deal less than they borrowed." And in his wireless to the London Conference, July 3, 1933, the President repeated: "The United States seeks the kind of dollar which a generation hence will have the same purchasing and debt-paying power."

<sup>44</sup> Some of the most successful speculators for the inflationary rise operate in reckless disregard of national interest, not only advocating but promoting inflation. In the European hyper-inflations, those who sold their country's money short were those least troubled by patriotic motives. Later they incurred the hatred and persecution of their countrymen.

<sup>45</sup> At a recent hearing before the Wisconsin Public Service Commission, a utility contended that the "informed investor" was loath to purchase its stock because it afforded no protection against inflation. This brought the comment by opposing counsel that the public could not afford the "luxury" of the informed investor, and *The Milwaukee Journal* saw fit to run a cartoon chiding the utility for wanting "informed" investors rather than the common garden variety. During the 1930's the federal government was concerned about losses to utility investors through operations of stock manipulators. Should it now be indifferent to prospective losses due to inflation?

Some have argued that labor should be victimized, others contend it should be the landlord, the white collared class, or the government employee. No one, it seems, contends that industrial stockholders should be deprived of their property by inflation. This attitude, which is taken solely towards utility shareowners, is the unique product of the power to regulate and has not received ethical justification by reasoned argument.

Not only should the stockholder be protected by an inflation adjustment, but utilities should be permitted to issue bonds and preferred stocks with a purchasing power clause provided that bond buyers are willing to risk money payments fluctuating up and down with prices. During periods of rising prices the cost of servicing the debt would rise and rates would have to be raised accordingly. If prices fell, debt service would fall and rates could be reduced.<sup>46</sup> I doubt that institutional investors with fixed money liabilities would be interested in such a security, but believe that no legal or regulatory obstacle should be placed in its way.

Grounds cannot be found in equity for treating the utility shareowner differently from the owner of industrial stocks, except, as previously mentioned, that the inflation adjustment should be limited to the common stock equity. This makes the owner of common shares neither a gainer nor loser by inflation, his investment and income remaining constant in purchasing power. The real beneficiaries of inflation remain the users of utility services, and the losers, the owners of fixed income securities. It seems a little ambitious on the part of those already receiving this unearned increment to demand even more.

<sup>46</sup> I believe the purchasing power bond to be feasible for business concerns because they can raise prices to recoup increased debt charges. It is doubtful whether such a bond would work for the federal government, because the latter has no means of automatically raising revenues to pay increased debt charges. Such a bond might possibly lead to a continuous inflation. The only relevant issue here is that the purchasing power bond is feasible in the utility industry.



*The Price Adjustment Formula*

An inflation adjustment is made necessary by changes in the level of prices and it can take any form so long as it compensates for such changes. Accounts are now kept in terms of original cost and a price index can be used to convert historical cost into cost expressed in dollars of the current year. The difference between the two, expressed as a percentage change, measures the degree of inflation or deflation. If the rate base is corrected for price changes, the rate of return can remain identical with the cost of money; whereas, if the rate base continues to be expressed in original cost, the rate of return must be adjusted for price changes. Either method is workable, but I have chosen to express the inflation adjustment as an increase in the rate of return. Since this adjustment must be applied both during inflation and deflation, we shall rename it the "price adjustment." It can be either positive or negative, though at present it is positive. A formula must work both ways; if the return is increased when the value of money falls, it ought to be decreased when the value of money rises.

We can now state the principles of regulation that will preserve the real value of equity investment.

1. Utility property accounts should be kept in terms of original cost.
2. The rate base consists of historical cost minus accrued depreciation.
3. The rate base (2) is equal to total capitalization.
4. The rate base (2) or total capitalization (3) should be converted into dollars of the current year by means of a selected index number.
5. The difference between (4) and (2) should be expressed as a percentage change.
6. The price adjustment should be computed only on that portion of total investment represented by the common stock equity.
7. The rate of return should consist of the cost of money plus or minus the price adjustment.

It is realized that in the actual complexities of utility accounts these principles can only be approximated in specific cases, but that need not deter us from understanding their general application.

Let us use the following definitions and symbols:

Rate of Return (%)	Cost of Money plus Price Adjustment
R	M + A
Cost of Money (%)	Weighted Cost of Interest, Preferred Dividends and Earnings Ratio on Common Equity per Dollar of Capital
M	
Common Stock Equity (%)	Common Stock Equity
E	Total Capitalization
Change in Price (%)	$\left( \frac{\text{Cost in Current Dollars}}{\text{Historical Cost}} \right)$ minus 1
P	
Price Adjustment	$P \times E \times M$
A	

*Hypothetical Example:*

Historical Cost	\$100
Historical Cost in Current Dollars	135
Change in Price (P)	+ 35%
Common Stock Equity (E)	37%
Cost of Money (M)	6%

*Solution for Price Adjustment (A):*

$$A = PEM$$

$$A = (.35 \times .37) 6\%$$

$$.1297 \times 6\% = .7782\%$$

$$A = .78$$

*Solution for Rate of Return (R):*

$$R = M + A$$

$$.06 + .0078 = 6.78\%$$

With M at 5.5%, A would be .71% and R 6.21%.

With M at 5%, A would be .65% and R 5.65%.

Now applying this formula to the Class A and B electric utilities in the United States as shown in Tables II and III we get the following results:

Historical Cost.....\$21,350  
 Historical Cost in 1952 Dollars.. 28,929  
 Change in Price (P)..... +35%  
 Common Stock Equity (E)..... 37%  
 Cost of Money (M)..... 6, 5½ or 5%

Making the same computations as in the hypothetical example, we obtain the same results.

This shows that a price adjustment of about .7 percentage points in the rate of return would now fully compensate utility equity owners on the average for inflation and maintain the real value of their investment. The consumer would

thus be paying only 37 percent of the higher prices caused by inflation because he gets the benefit of historical cost (without inflation adjustment) on 62 percent of the total capitalization. The amount of adjustment would of course have to be computed for each utility using its plant account, depreciation reserve, capital structure and cost of money.

The size of the price adjustment will be increased if prices rise, and it will be decreased if prices fall or if prices remain stable while additional plant is built. Under conditions of secular inflation the price adjustment will move steadily upward, and under secular deflation it will move downward. The degree of adjustment at any time would rest with the judgment of the Commission.

TABLE II—THE ADJUSTED VALUE OF INVESTMENT IN PRIVATELY-OWNED CLASS A AND B ELECTRIC UTILITIES  
 (money amounts in millions)

Year	Net utility investment <sup>1</sup>	Increment of investment	Index of wholesale prices, consumer prices, and utility construction costs <sup>2</sup>	Value of investment in dollars of current year
			(1945 = 100)	
1945.....	11,426		100	11,426
1946.....	11,624	198	112.1	13,006.546
1947.....	12,457	833	133.1	16,276.099
1948.....	13,898	1,441	145.2	19,196.744
1949.....	15,558	1,660	143.2	20,592.325
1950.....	17,056	1,498	147.3	22,679.338
1951.....	19,000 est.	1,944	160	26,579.338
1952.....	21,350 est.	2,350	160	28,929.338

<sup>1</sup> The sources from which this information is taken are: *Statistics of Electric Utilities in the United States 1949*, Federal Power Commission, Washington, D. C., p. ix; and *Electrical World*, January 28, 1952, p. 127.

<sup>2</sup> This index is based on: (1) B.L.S. index of consumer prices; B.L.S. index of wholesale prices; and (3) Handy-Whitman index of utility construction costs, reproduced in: E. W. Morehouse, *Regularization of Business Investment in the Electric Utility Industry*, (New York: National Bureau of Economic Research, 1951), p. 56, Table II.

TABLE III—INVESTMENT IN CLASS A AND B ELECTRIC UTILITIES IN 1952 DOLLARS (money amounts in millions)

Year	Annual increment of net investment <sup>1</sup>	Index of adjustment	Investment in 1952 dollars
1945....	11,426	160	18,281.6
1946....	198	142.73	282.61
1947....	833	120.21	1,001.35
1948....	1,441	110.19	1,587.84
1949....	1,660	111.73	1,854.72
1950....	1,498	108.62	1,672.13
1951....	1,944 est.	100	1,944
1952....	2,350 est.	100	2,350.
	21,350		28,929.25

<sup>1</sup> The sources from which the information in this column is taken are: *Statistics of Electric Utilities in the United States 1949*. Federal Power Commission. Washington, D. C. p. ix; and *Electrical World*, January 28, 1952, p. 127.

In computing the price adjustment I have used 1945 as a base year. This is a matter of judgment with which others may rightly differ. This year was selected as a reasonable compromise between the policy of revaluing all assets no matter how far back acquired and revaluing none of them. It is justified, moreover, because the utilities were not asked to deflate valuations during the Great Depression but were permitted to earn on historical costs. No one is entitled to live in the best of all possible worlds, using historical costs during low prices and current costs during high prices. Consumers paid too high prices in the 1930's and too low prices thereafter. The two should be allowed to cancel out in order to arrive at a reasonable policy for the present and future.

The price index used is an equally weighted average of BLS Wholesale Prices and BLS Cost of Living with the Handy-Whitman index of utility construction costs. Some earnings are spent for consumption, others are reinvested, others go to buy additional plant, hence the three different indexes to represent these three uses and to lend more stability than is found in any one index.

The proposed price adjustment is wholly independent of any depreciation policy because the depreciation reserve is always deducted from the rate base. Hence, if a special depreciation reserve is set up for price changes, the rate base will be just so much smaller. While I believe, in principle, that higher annual depreciation charges should be made during inflation, the policy here proposed of adjusting the rate of return can be carried out regardless of what depreciation policy is adopted.<sup>47</sup>

The annual charge for depreciation should be sufficient to replace the physical capital being used up. Otherwise users of utility services will not be paying the real cost of service but will be currently consuming capital. Capital consumption can be avoided by adjusting the annual depreciation charge upward by use of a price index. Such an added charge will be deducted from the rate base and will also reduce the amount of new capital needed.

So long, however, as commissions consistently follow the policy of using a rate base of investment minus depreciation, no loss need be suffered by the investor even if depreciation is inadequate. Inadequate depreciation charges simply mean that the rate base will be ballooned by new security issues which would not have been necessary had depreciation been greater. The capital consumed by the customer will be replaced by new investors who will be entitled to a fair return on it. An inadequate depreciation policy, however, always runs the risk that a future commission may revert to physical valuation, claim that past depreciation was inadequate, cite the utilities' own claims and admissions as proof, and order the utility to set up additional depreciation reserves and charge

<sup>47</sup> For a treatment of a special depreciation reserve, see George B. Tully, "Inflation and Public Utility Depreciation," *Land Economics*, February 1952, p. 63.

that amount to surplus, thus effectively reducing the rate base and the return to the investor. Such a policy would be unfair, illogical, and inconsistent with previous policy but it would find justification in recent practice. Thus the utility investor would catch it coming and going.

Aside from such an inconsistency, increased depreciation charges to compensate for inflation are not primarily an issue between the utility and the consumer, but between present consumers and future consumers. If present consumers do not replace the physical capital used up, investors must do so and future consumers must pay for it. Here the difficulty is also made great by both the ordinary corporate tax and the excess profits tax. Additional depreciation expense would not be deductible for tax purposes but would be taxed ordinarily at 52 percent and, if the company was already earning 6 percent, at 82 percent as excess profits. However desirable, it may not be deemed practical to charge rates high enough so as to cover additional depreciation expense unless and until the tax laws are changed and, if this is done, it will probably include all corporations.

The tax difficulty will, however, be diminished for corporations obtaining Certificates of Necessity from the Defense Production Administration which under the Internal Revenue Code permit them to charge to expense for tax purposes the amortization of additional facilities over a period of 60 months. Wherever current depreciation expense is inadequate, such accelerated depreciation should be permitted also for rate-making purposes only however, to the extent that it compensates for this insufficiency. This rapidly amortized property will thus be taken out of the rate base over a period of five years and will reduce by so much the

burden which future consumers must bear because of the now inadequate depreciation policy.<sup>48</sup>

It is sometimes alleged that utility rates should be raised during inflation because utility services are underpriced, a condition creating excessive demand for utility services and thus requiring a much greater expansion of plant than would otherwise be necessary. This underpricing is in part due to inadequate depreciation and nominal valuation as adverted to above.

I cannot make much of this argument. Rates should, of course, cover cost of service including adequate depreciation, cost of money and the inflation adjustment. Beyond this they should not go. We should not create an additional monopolistic profit for the sole purpose of restricting demand. Utilities are not entitled to such profit and commissions should not grant it. If demand must be restricted by higher rates for reasons of national defense or scarcity of real resources, it should be done by means of an excise tax collected by the federal government. The argument of misallocation of resources is consequently made more often by economic theorists and experts than by the companies themselves. They would hardly consider it good public relations to antagonize their customers with the tale that increased rates were necessary for the purpose of discouraging demand while at the same time promoting the use of appliances and advertising in order to increase demand. Utilities operating at decreasing costs should not thwart increased per capita use of electrical energy. While higher rates

<sup>48</sup> The Interstate Commerce Commission has ruled that railroads must depreciate property over its actual life regardless of any policy which may be followed for tax purposes. It is not apparent, however, that this will have any appreciable effect on railroad rates since many carriers have been earning below a fair return. A similar policy for electric utilities might, however, have a sizable effect on rates and earnings.

might discourage some types of industrial demand, they would have little effect on residential customers whose use of electricity at present prices is more directly related to their ability to purchase electrical appliances than the cost per kwh of current.

A fair return, including an inflation adjustment, must rest on its own merit and it should not seek the support of such specious reasoning as would convert public necessity into monopoly profit.

There remains for consideration the probable future effect of the adoption of a price adjustment policy on the future cost of money and future rate of return. We have thus far assumed that the cost of money is an independent variable to which the inflation adjustment must be added. Inflation will make the rate of return higher than the cost of money and deflation will make it lower. We must, however, also consider whether the adoption of the proposed policy to adjust for inflation would itself change the cost of money. This policy reduces the risk of loss from inflation and to that extent should make utility securities safer and more desirable, reducing the yield and with it the cost of money. It has been argued that precisely this would happen so that the net effect of the inflation adjustment would be to reduce the cost of money sufficiently to keep the rate of return, even with the inflation adjustment added, not appreciably above its present levels. The inflation adjustment thus becomes purely academic at the present time. There is an element of both truth and of error in this contention.

With nominal valuation procedures, the prices of utility common stocks slump when inflation is feared, thus temporarily raising the cost of money. This higher cost continues, however, only during the fear of inflation and not when its danger is gone. Valuation at nominal costs, on

the other hand, tends to maintain utility stock prices when deflation threatens. The net effect of a policy of price adjustment on the cost of money is therefore likely to balance out between periods of stability, inflation and deflation. In the long run the effect will probably be insignificant.

Just for the sake of argument, and without admitting its validity, let us allow that there is at present a fear of inflation which has driven the over-all cost of money .5 percent above what it might be if utilities had inflation protection. The inflation adjustment here proposed is about .7 percent so the net upward adjustment in the rate of return would be .2 percent. The inflation adjustment accordingly seems to have little practical significance. This is not, however, the end of the story, for if inflation continues the size of the price adjustment would rise. A doubling of prices from present levels would raise the inflation adjustment from the present .7 percent to about 3 percent, and this rise certainly would more than offset any likely fall in the cost of money due to assurance of inflation protection. Because of this adjustment, any considerable inflation will cost the consumer more than he would be paying under the nominal cost rule. Nothing is gained by blinking this fact. The argument that an inflation adjustment makes for a lower rate of return is accordingly misleading and sophistical. Surely, if prices trend downward, the rate of return will fall; if they trend upward, it will rise. But the stockholder will receive no gain or suffer no loss because the purchasing power of a reasonable return on the real value of his investment will remain constant. In inflation, the money return and the real return will be higher than under purely nominal cost procedures,



and the real value of equity investment will be maintained. That is the purpose of the proposed price adjustment and its sole justification, and that will also be its result.

Because of the large capital expenditures being made on present price levels the inflation adjustment will be small so long as prices do not rise any further. As new investment at present prices becomes a larger part of the total, the inflation-coefficient will be gradually diminished. In some cases, companies and

commissions may consider the inflation adjustment presently inapplicable, but the principle of adjustment remains sound and the internal revenue statutes are not like the laws of the Medes and the Persians. The inflation adjustment may therefore come to have more relevance to the future than to the present, and should the upward march of prices be resumed, action on both depreciation expense and rate of return will become imperative in order to maintain the real value of utility investment.

# Oligopsony in the Wisconsin Tobacco Industry†

By HENRY H. BAKKEN\* and WILLARD F. MUELLER\*\*

TOBACCO has been cultivated in Wisconsin since the 1840's, and grower dissatisfaction with the marketing of this important Wisconsin cash crop<sup>1</sup> has manifested itself for well over half a century. The first concerted efforts by growers to improve their marketing position took the form of co-operative associations, the first dating back to 1888. During the decades that followed, various cooperative ventures for packing and selling were attempted. A number of local associations were formed under the auspices of the American Society of Equity between 1905-1915. Not until 1922 was any sizable portion of the Wisconsin crop marketed through an association organized on a state-wide basis. In that year the Northern Wisconsin Cooperative Tobacco Pool (hereafter referred to as the Pool) was first organized. Originally it marketed tobacco grown in both the northern and southern producing areas, but since its reorganization in 1936 its operation has been confined to the northern area.<sup>2</sup>

† Analysis of this problem was initiated in Research Bulletin No. 162, Wis. Agr. Expt. Station, May 1949. Most of the data in this article was presented by the authors and others during June and July of 1951 before the Department of Agriculture's public hearings on *Methods of Competition and Trade Practices in the Wisconsin Tobacco Market*.

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<sup>1</sup> Although comprising only a small fraction of Wisconsin's total agricultural income, tobacco is the primary cash crop of about 5,500 Wisconsin farmers, and Vernon and Dane County farmers receive 15.8 and 7.5 percent of their total agricultural income from this source. Wisconsin produces about 50 percent of the country's binder leaf tobacco and receives approximately 8 million dollars annually therefrom.

<sup>2</sup> The northern area refers to those counties northwest of the Wisconsin River with the exception of Grant County, whereas the southern area refers to those counties southeast of the Wisconsin River. The tobacco grown in the northern areas has been designated as cigar leaf type 55 and that in the southern area type 54.

No other tobacco marketing organization existed in the southern area until the formation of the Wisconsin Cooperative Tobacco Growers Association in 1942. This association has confined its activities largely to handling the type 54 tobacco placed under the government loan program.

Legislative efforts to improve the marketing of Wisconsin tobacco were made during the last two legislative sessions (1949-51). Bills were introduced in the Assembly which would have required the licensing of buyers, provided for the establishment of grading services for growers, and would have required the Wisconsin Department of Agriculture to collect and disseminate market information. Both bills were passed by a strong majority in the Assembly, but neither was submitted to a vote in the Senate.

Another effort designed to improve Wisconsin tobacco marketing conditions was initiated in 1951. A sealed-bid auction market was established on a limited scale in the type 54 area which was designed to dovetail with the government loan program. This market was initiated to give the growers an opportunity to sell their tobacco to private buyers after bringing their tobacco to their association warehouse for grading prior to being placed under government loan.

On March 22, 1950, the Wisconsin Attorney General's office announced its intention of investigating certain alleged unfair practices in the purchase of leaf tobacco in Wisconsin. After making a comprehensive investigation of the market problems in the Wisconsin tobacco industry it suggested that the State Department of Agriculture issue a code of

fair trade practices and set up market news and grading services for Wisconsin tobacco growers. After a series of industry meetings and public hearings at which testimony was presented before the Department of Agriculture, such a code, which became effective January 1, 1952, was promulgated by the Department of Agriculture. The authors were fortunate in being given access, for research purposes, to the voluminous material gathered by the Attorney General's office.<sup>3</sup>

The above resumé of efforts at market reform is by no means exhaustive, but the major efforts, especially contemporary ones, have been cited to illustrate the apparent existence of a problem at the present time.

That problems existed in the Wisconsin tobacco industry has generally been recognized for some time, but not until recently were the forces of research, legislation, and administrative regulation focused to mitigate the apparent evils. Investigation by the authors suggests the hypothesis that the existence of a high degree of concentration on the buying side of this market creates potential market power which may place the relatively unorganized sellers at a distinct market disadvantage; and further, that this situation of apparent market inequity created by the structural composition of this market has been aggravated by the primitive marketing techniques employed in Wisconsin and in other cigar leaf tobacco-producing areas.

It shall be the purpose of this paper to describe the structure of this market and to illustrate the manner in which the oligopsonistic potential created by this structure, abetted by the prevailing marketing techniques, is apparently ex-

ploited to the detriment of Wisconsin tobacco growers. The concluding section will include an analysis of various proposals and policies designed to mitigate these problems.

#### *Structure of the Wisconsin Tobacco Industry*

*Structure on Buying Side.* Although the extent of concentration in cigar manufacture at the national level is appreciably less than that of other tobacco products, that facing Wisconsin tobacco producers is substantial. This situation can be appreciated by observing the following facts. Although the eight largest cigar manufacturers produced only about 57 percent of the total national output in 1947, the eight largest purchasers of cigar leaf tobacco in Wisconsin purchased practically all of the Wisconsin binder types of tobacco. The extent of concentration in the manufacture of scrap chewing tobacco at the national level is considerably greater than that of cigars. The eight largest manufacturers of chewing and smoking tobacco at the national level produce about 80 percent of the output.<sup>4</sup> This higher degree of concentration at the national level is manifest in the existence of a small number of agents and enterprisers buying stemming grades in Wisconsin.

Tables I and II illustrate the extent of concentration in buying Wisconsin cigar leaf tobacco types in 1949. As stated previously, Wisconsin leaf is of two types (types 54 and 55) each of which is utilized for two purposes: cigar binder leaf and scrap chewing tobacco. These figures illustrate the percentage of each type purchased by the eight largest cigar and scrap chewing companies acquiring raw leaf tobacco in Wisconsin. Since there

<sup>3</sup>One of the authors wrote his Master's thesis analyzing much of this material. Willard F. Mueller, *Market Imperfections in the Wisconsin Tobacco Industry*, University of Wisconsin, 1951.

<sup>4</sup>The extent of concentration in the manufacturing of scrap chewing tobacco is considerably greater than is indicated by the above figure, since this includes smoking and several types of chewing tobacco other than scrap chewing. Five large firms manufacture the preponderant amount of scrap chewing tobacco.

were substantial inter-company transfers of tobacco by various companies, the above statistics in most instances represent the ultimate buyers in this area rather than intermediate assemblers. These transfers consisted almost entirely of stemming tobacco. Apparently some companies find it to their advantage to buy both the stemming and binder portion of a crop from growers although they plan to utilize only binder grades themselves. Consequently, they resell their stemming purchases, sometimes resorted, to those companies engaged in the manufacturing of scrap chewing tobacco. Almost three million pounds (about 30 percent of the total type 55 stemming tobacco) were purchased and subsequently resold in this manner.

TABLE I—CONCENTRATION IN BUYING OF TYPE 54 TOBACCO IN (SOUTHERN) WISCONSIN, 1949 CROP

Grade	No. of Companies	Extent of Buying Controlled by			
		Two largest Firms	Four largest Firms	Six largest Firms	Eight largest Firms
All grades.....	8	63.9	92.6	99.0	100.0
Stemming.....	5	65	95	.....	.....
Binder.....	4	95	100	.....	.....

TABLE II—CONCENTRATION IN BUYING OF TYPE 55 TOBACCO IN (NORTHERN) WISCONSIN, 1949 CROP

Grade	No. of Companies	Extent of Buying Controlled by			
		Two largest Firms	Four largest Firms	Six largest Firms	Eight largest Firms
All grades.....	13	43.5	68.7	80.7	91.5
Stemming.....	7	65.0	95.0	99.0	.....
Binder.....	10	34.1	63.0	82.0	94.0

The above tables illustrate that there are really only four outlets for the lower grades of Wisconsin tobacco. Although less than for stemming grades, the extent of concentration in binder leaf purchases is also very pronounced. In the southern area four companies purchased all the binder leaf sold, one company purchasing

the preponderant amount, whereas in the north ten buyers purchased all of the binder grades sold in 1949.

The existence of such a preponderant degree of concentration on one side of the market structure results in the creation of inherent oligopsonistic opportunities, the precise utilization of which is dependent upon the other structural components existent in this market and upon the manner in which the marketing techniques employed in this market lend themselves to oligopsonistic manipulation.

*Structure on Selling Side.* There are approximately 5,500 tobacco producers in Wisconsin, roughly 3,300 in the north and 2,200 in the south. Except for the tobacco sold through the Northern Wisconsin Cooperative Tobacco Pool and that placed under government loan, the growers usually act individually in marketing their crop. In these cases the marketing transactions are negotiated at the farm level where buyers or their agents inspect the crop and make their offers. The number of offers received by an individual grower varies from none to several, depending upon his geographical proximity to the warehouse centers of the major growing areas, his reputation, his acquaintance or relation to commission buyers, and diverse other factors.

The Pool is the only cooperative association actually marketing tobacco leaf for the growers. It markets approximately 40 percent of the type 55 tobacco which constitutes approximately 25 percent of the total Wisconsin crop. Members' crops are received and sold individually after being classified, graded, and appraised for market value. In addition to marketing its members' tobacco, it also handles all type 55 tobacco placed under government loan—both for members and nonmembers.

In 1951 the growers of type 54 tobacco experimented with a sealed-bid auction market. Only about 1.5 percent of this type was actually sold on this market. The amount offered for sale, however, was substantially larger than that actually sold. This experiment was not repeated in the 1952 market season.

*Factors Contributing to Market Inequities.* The preceding description of the structural constituents of this market suggests the presence of unequal market power between the tobacco firms and growers. This potential market power of buyers is augmented by the conditions under which most Wisconsin tobacco is sold. As stated previously, most growers negotiate the sale of their crop at the farm. The circumstances under which such transactions transpire contributes to their market disparity. Growers generally possess little reliable knowledge of market conditions and only imperfect conceptions of the relative quality of their crops. The grower's only source of market information for years had been via the "grapevine" and statements, largely based on hearsay, appearing in local weekly newspapers. Until recently, objective standards of quality evaluation have been unavailable to growers selling on the farm, and consequently they have customarily been compelled to sell their crops ungraded. It is generally recognized that buyers possess superior knowledge, both as to relative crop quality and general market information.

Another factor contributing to the market disadvantage of growers selling on the farm is the fact that most growers possess only limited opportunities to contact buyers. Although the vast majority of growers have been able to contact at least one buyer in recent years, most are unable to exhaust all of their alternatives; as are growers selling in auction markets in the Southern states. Complete mo-

bility (in terms of contracting all potential buyers) generally results in the maximum degree of competition permitted by a given market structure.

The above discussion of the structure of the Wisconsin tobacco industry and brief description of the market conditions under which most tobacco is sold, illustrates the probable existence of unequal market power, the balance being in favor of the firms engaged in buying cigar leaf tobacco in Wisconsin. The following discussion is concerned with some of the apparent consequences of this disparity of market power.

#### *The Consequence of the Market Structure Upon the Buying Pattern*

Two prerequisites are essential in order to render a valid value judgment of a particular market structure. First, observation and analysis must be made of the consequences of the existing market structure upon those composing a part of it; and second, a comparison must be made between the consequences of the existing structure and possible alternatives.

In the discussion of the structural composition of this market it was implied that the present market structure provides an opportunity for the buyers to affect the marketing process in a manner not possible in perfectly competitive markets, but it remains to be determined whether and how this potential market power has actually been consciously or unconsciously utilized by those possessing it. The following phenomena are typical characteristics of the pattern prevalent in this market. This analysis will be restricted largely to the marketing of type 55 binder tobacco.<sup>6</sup>

*Uncertainty Associated with Commencement of Buying.* One of the most recurrent characteristics of the market pattern pre-

<sup>6</sup> The type 54 binder tobacco pattern is substantially the same as that for the type 55 sold outside of the Pool.



vailing in cigar leaf markets is the uncertainty (on the part of growers) associated with the commencement of widespread buying of binder leaf tobacco. The major firms normally decide at the home office when buying may begin, but one of the major determinants of the date is "case"<sup>6</sup> weather of long enough duration to permit stripping the tobacco leaf from the stalk, tying it in hands, and packing it in bundles. Such weather usually occurs in November and December, although in some years not until January. Although this is one of the major factors permitting buying to commence, there have been years in which buying has not actually begun until a much later date. Even in years in which buying commences shortly after favorable "case" weather occurs, most growers have never definitely been informed in advance of the date when buying was scheduled to commence.

Testimony was given in the recent public hearings by one buyer to the effect that the date buying was to begin in the marketing of the 1949 crop was January 2, 1950, and that this was general knowledge to all in the industry.<sup>7</sup> Subsequent questioning of growers failed to reveal any knowledge on their part as to this presumed "widespread knowledge."

Testimony was submitted suggesting that on many occasions in the past buying had been held off until the approach of tax-paying time in an apparent effort to induce growers to sell more cheaply.<sup>8</sup>

Whether buyers have justifiable reasons for delaying buying or not, growers and many others in the community are apparently convinced that buyers are "putting the economic squeeze" on them by delaying buying. A newspaper located

in one producing area commenting on the apparent delay in the buying of the 1948 crop summarized the situation as follows:

"Boiled down to facts, it is a repetition of the same old war of nerves. It is difficult to sift truthful reports from mere rumors . . . It is safe to assume that the tobacco buyers are not around to tour the countryside and enjoy the beautiful scenery. They probably have received orders to sit tight and wait for the nod from their bosses in the big Eastern tobacco companies."<sup>9</sup>

In addition to the strong presumption that buyers have made agreements as to the date buying should commence, *prima facie* evidence suggests the presence of at least tacit agreements among buyers. Analysis of the buying pattern in recent years reveals that the largest buyers have often commenced binder leaf buying on identical days. In the marketing of the 1949 crop, five companies commenced buying on January 2, 1950. Two of the smaller companies began buying a few days earlier. One purchased two crops on December 29, 1949 and two on December 31. The other company purchased four crops on January 1, 1950. Such buying behavior may occur simply as a consequence of each large firm's recognition that its actions may impel other firms to move into the field simultaneously, and consequently it may be to their mutual advantage collectively to delay buying at times in order to accentuate a buyers' market.

It is of importance that in most years no general widespread buying by small buyers can occur until one or more of the larger companies enter the field. There have been occasions when buyers have purchased crops immediately after "case" weather occurred, but farmers were generally reluctant to sell until they had some idea of what the large

<sup>6</sup> Humid or rainy weather occurring in late fall or early winter.

<sup>7</sup> *Record*, pp. 55-59.

<sup>8</sup> *Record*, pp. 28, 29, 30, 32, and 47. Exhibit 31, page 13.

<sup>9</sup> "Tobacco War of Nerves," *Vernon County Broadcaster* January 6, 1949, p. 1.

companies were offering. Furthermore, small buyers may fear that if they begin buying early at prices sufficiently high to induce growers to sell to them, they may purchase their requirements at prices in excess of those later established when the large companies commence buying. Thus, even in the absence of outright agreement among all buyers, the resulting market behavior may be similar to that which would obtain in the case of outright agreement because they recognize that their individual market behavior will effect that of their buying rivals. Those not purchasing sufficient quantities to influence the market greatly may find it to their advantage to follow the leaders.

*Non-continuous Market Coupled With Threat of Declining Prices.* The accompanying charts illustrate the pattern of buying which occurs from an abrupt commencement to a tapering termination. These charts indicate the percent of the total type 55 binder leaf tobacco sold outside of the Pool daily and the average price of such transactions during three recent years. This price line is an average of all binder grades and it is not strictly comparable throughout since the daily weighted average price is not necessarily based on comparable grades. The existence of certain unexplained price breaks over weekends and the testimony of growers and some buyers indicates, however, that prices for the same quality tobacco has often undergone precipitous declines as the market period progresses.

Testimony submitted by one grower illustrates dramatically the very phenomenon which many fear may happen to them unless they sell during the initial period of buying. During a recent post-war year, this grower received an offer of 73 cents per pound for his crop which he was unable to accept immediately.

Shortly thereafter he contacted the same buyer who then offered him only 55 cents which he accepted a few days later for want of a better offer. The interval between the first offer of 73 cents per pound and subsequent sale at 55 cents was only about a week. Other testimony submitted suggests that many growers fear that if they do not sell during the the first days of the season they may be compelled to sell at greatly reduced prices.<sup>10</sup>

Repetition of such experiences, which may be exaggerated by rumors in a market possessing inadequate information, are likely to coalesce expectations and reality in such a manner that a declining market price for identical tobacco becomes the customary market situation and not the exception. In a letter of a small buyer to one of his agents the following mention is made of such a price decline:

"I don't want the growers in the north to be as mad at me as they are at some of the buyers in the south who told the farmers last year to hold their crops for them only to have them 'pulled off' before they got around, and the poor farmers turned down offers to 50 cents for the first day or two of buying only to take 15 to 20 cents three months later"<sup>11</sup>

Counsel for the tobacco buyers defended the seasonal price decline by using the following hypothetical reasoning. He contended that this phenomenon (of declining prices) was analogous to that of an individual dairy farmer who had a barn with only 20 stanchions. It would be only natural, he asserted, that the farmer would be willing to pay less for the 21st cow than the 20th. He argued that the Wisconsin tobacco buyers were in a similar position in that when the buyers filled their requirements they ceased buying or continued at greatly reduced prices.

<sup>10</sup> Record, pp. 8, 30, 40, 41, 49, 80, 115, 145-46, 240.

<sup>11</sup> Record, p. 54.

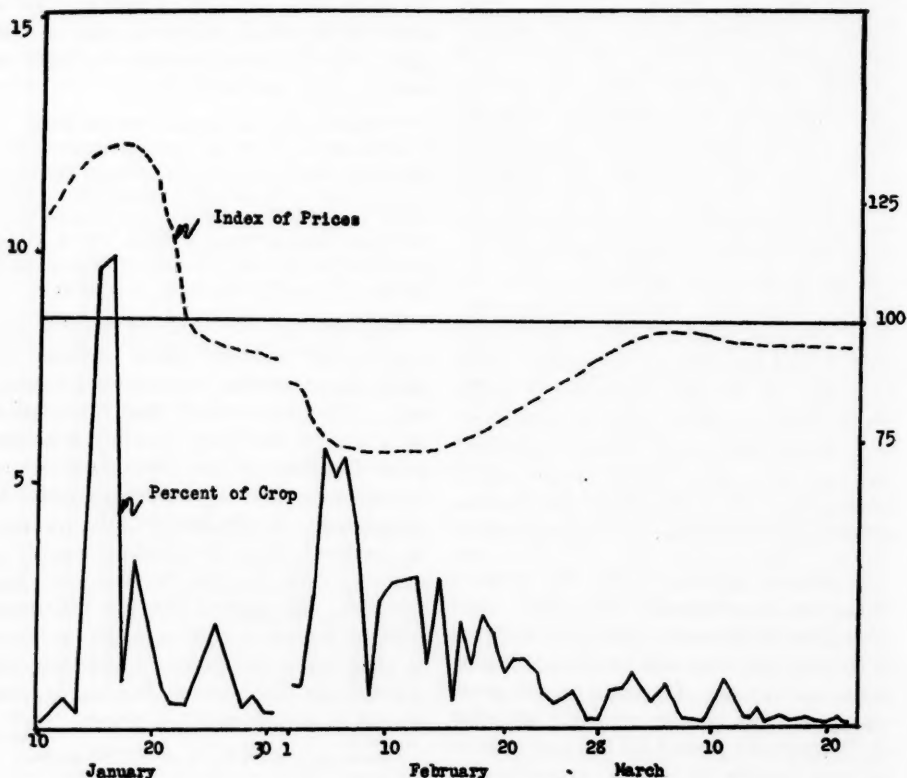
Although this argument is valid when taken from the viewpoint of an individual buyer, it loses its validity when taken from the viewpoint of all the buyers. It would certainly seem unrealistic if the demand of all farmers was satiated upon the identical day. This analogy is further weakened by the fact that buying has at times apparently ceased when the requirements of many buyers were only partially filled. In many years buying has apparently ceased temporarily after an initial period of active buying. As is shown on Chart I (1947 crop), buying activity diminished after the first wave of buying only to be resumed again in the beginning of February. Chart II indi-

cates that a somewhat similar pattern occurred in 1948. The Wisconsin Department of Agriculture found on this point: "Buying representatives are sometimes 'called in' or are instructed to 'quit buying' by their principals; the fact that the principals may have completed the purchase of approximately their then known requirements may be justification for such action in many instances, *but the resumption of increased activity later in the season remains unexplained.*"<sup>12</sup> (italics added)

When viewed from the point of its affect upon the market psychology of growers, it may make little difference, in

<sup>12</sup> *Findings of Facts and Conclusions*, Wisconsin Department of Agriculture. Docket No. 366, page 6.

CHART I. Percent of Type 55 Binder Tobacco Sold Daily by Individual Producers and Index of Prices Received (1947 Crop)  
Percent of Crop Index of Prices



a given year, whether a concerted "buying campaign" has actually been staged by buyers or not, since growers' expectations that a price decline is inevitable may create a market atmosphere lending itself to an actual decline. That many growers have apparently become mentally conditioned to this phenomenon (of declining prices) is evidenced by the fact that customarily the majority of the growers accept the first offer tendered.<sup>13</sup>

### *Establishment of Maximum Prices*

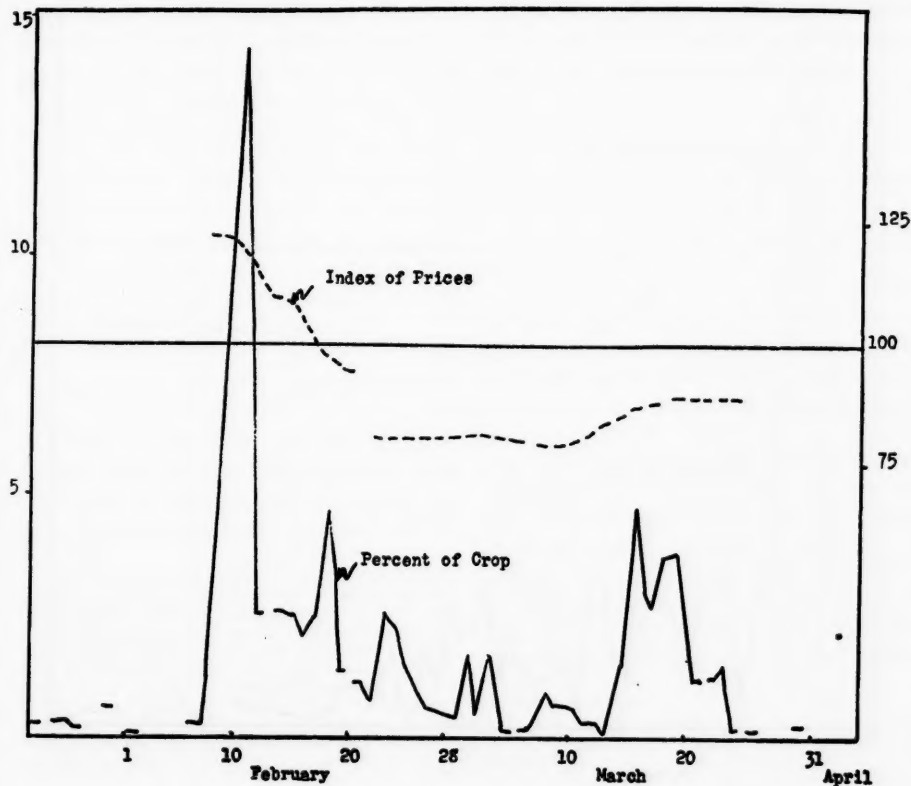
It was alleged (by the Attorney General's Office) that in 1949 an under-

<sup>13</sup> *Record*, Exhibit 18, page 77.

tanding existed among buyers that a high of 50 cents per pound for type 55 binder leaf tobacco was justified by prevailing market conditions. Prima facie evidence suggests that at least tacit agreement existed among buyers as to the establishment of such a maximum price. During the first two days of heavy binder leaf buying, 70 percent of the type 55 binder tobacco sold at an even 50 cents per pound. Only one of the four largest buyers purchased any tobacco above this price (one large company purchased one crop at 51 cents and another at 52 cents per pound) and less than 1/2 of one percent of the binder tobacco was purchased

CHART II. Percent of Type 55 Binder Tobacco Sold Daily by Individual Producers and Index of Prices Received (1948 Crop).

Percent of Crop	Index of Prices
0	100
10	100
20	100
30	100
40	100
50	100
60	100
70	100
80	100
90	100
100	100



at above this price during the entire season. The fact that such a substantial amount of the crop was purchased at an even 50 cents per pound would suggest that all of this tobacco was of identical quality—which seems highly improbable.

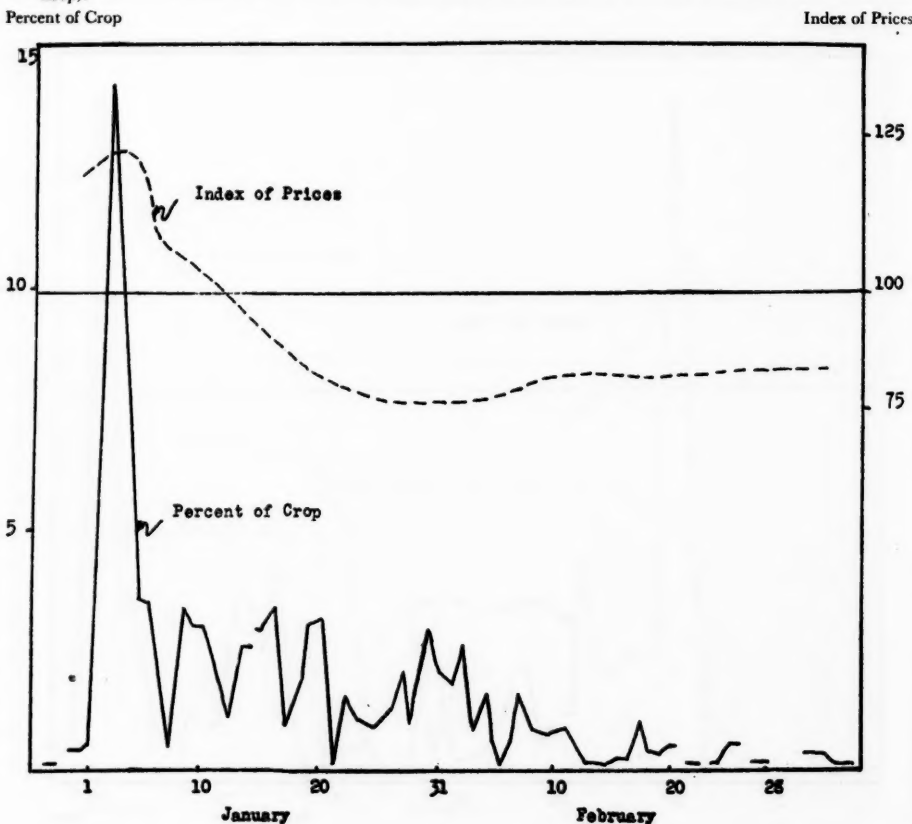
Counsel for the buyers argued that the establishment of a 50-cent top was inevitable since the government had previously announced a top support price of 51 cents (actually 52 cents) per pound. This argument, which was practically unchallenged, was advanced so persistently that the Department of Agriculture's Findings of Fact stated: "The

early announcement of the Commodity Credit Corporation of its loan or advance rates on tobacco practically dictates the subsequent market prices for the crops."<sup>14</sup>

That the previous announcement of price supports practically dictates the minimum price at which tobacco will be sold is obvious, but in a competitive market a similar consequence would never occur with respect to the establishment of the maximum prices paid if demand at that price is greater than supply. That demand for these higher grades was at least as great as the support price, is

<sup>14</sup> "Findings of Fact and Conclusions," Wisconsin Department of Agriculture, Docket No. 366, page. 7.

CHART III. Percent of Type 55 Binder Tobacco Sold Daily by Individual Producers and Index of Prices Received (1949 Crop).





illustrated by the fact that no tobacco of the two top government grades was placed under loan.<sup>15</sup> There was undoubtedly a substantial variation in quality in the 2,000,000 pounds (constituting about 29 percent of the total binder grade tobacco sold by non-pool producers) purchased at an even 50 cents per pound. In 1949, 70 percent of the binder tobacco purchased during the three most active days of trading (during which about 25 of the non-pool No. 55 binder was purchased, Chart III) sold at an even 50 cents per pound. Such a quality differential would very likely have been reflected in a competitive market by the fact that at least a portion of the highest quality tobacco would probably have been bid up above the highest government support price resulting in a different pattern of prices than that actually established in this market. That such a result is likely in a competitive market has clearly been demonstrated by the experiences with the government support program for potatoes (and other agricultural products selling in competitive markets). In spite of general surpluses of potatoes at prevailing support prices, market prices for the highest quality potatoes of a given grade often exceeded the support prices for such a grade.

That intimidation of smaller firms by large firms has been utilized at times in an effort to prevent the payment of "over a stated price to Wisconsin farmers" was evidenced by testimony submitted in the recent tobacco hearings. A small buyer<sup>16</sup>

testified that a large firm to whom he customarily sold some of the tobacco he purchased in this area intimidated him by urging that unless he stopped buying tobacco at over a stated price he would refuse to do business with him in the future, and further, that he would endeavor to squelch his future tobacco buying activities in this area.<sup>17</sup>

Another indication that efforts to stabilize prices have existed is the fact that "bonuses" or "side payments" have been paid to growers, apparently to keep from breaking the "going price." This practice apparently has been confined to smaller buyers who had trouble securing adequate supplies at the "going price." In recent postwar years instances of such payment have been revealed which ran as high as \$1,000 per crop.<sup>18</sup>

The Department of Agriculture took cognizance of the above and other evidence in concluding that "there have been instances where, by declaration of value limits, by threats and by pressure, dealers have in effect established a secret ceiling on prices to farmers and have prevented or attempted to prevent other buyers from paying more than such secret ceilings."<sup>19</sup>

The above pattern of buying is apparently the consequence of the existence of a small fraternity of buyers, who, through outright or tacit agreements, behave in a manner beneficial to their mutual interests. However, in appraising the utilization of this market power, recognition should be made of the fact that the effectiveness of this power has been peculiarly augmented by the conditions under which most Wisconsin growers sell their crops. When selling on the farm, many growers lack adequate knowledge as to the quality and conse-

<sup>15</sup> Growers are generally willing to accept a cent or more less from private buyers than they could expect to get from the government for similar quality because of extra costs involved (government grading and handling charge), later date of delivery and consequent loss of weight, later payment, and a general disinclination to place tobacco under government loan if it is possible to avoid this alternative.

<sup>16</sup> This buyer customarily sold the tobacco he purchased to independent cigar manufacturers, who did not have their own buyers in this area, and to some of the large firms making purchases here.

<sup>17</sup> *Record*, page 274.

<sup>18</sup> *Record*, pp. 220 and 224.

<sup>19</sup> "Findings of Fact and Conclusions," *op. cit.* Docket No. 366, p. 5.

quent relative market value of their crops, thereby often making them easy prey to the more informed buyers. This problem is intensified by the fact that growers have customarily been compelled to depend upon rumor for their market information. These disadvantages have been further intensified by the relative immobility of growers, i.e., the inability of many growers to contact one or more buyers during the opening rush. The presence of these market conditions tends to further discourage, or at times completely obviate, the necessity of competitive bidding on the part of buyers. Thus, this market is plagued with what economists refer to as "imperfect" as well as "impure" competition, with the former being used as a lever to increase the effectiveness of the potential market power created by the latter.

#### *Effects on General Level of Wisconsin Tobacco Prices*

It has been implied above that the buying pattern present in this market is inimical to the interests of Wisconsin tobacco growers. However, objective measurement of the magnitude of price depression resulting from the utilization of oligopsonistic power of this type is not determinable through the application of existing economic theory. Certain facts are present in this market, however, which suggest that prices undoubtedly would have been depressed had not the government support program operated as a deterrent. In 1946, for example, prices offered for type 54 tobacco declined substantially below support levels shortly after buying commenced. Growers subsequently placed approximately  $2\frac{1}{2}$  million pounds (about 15 percent of the type 54 crop) under loan. Later in the year all of this tobacco was purchased at prices slightly in excess of the loan price resulting in an additional payment

to growers of 12.5 percent of the loan price. This incident suggests that in the absence of the government support program many growers would have sold their tobacco leaf at prices considerably lower than would have been justified by actual supply and demand conditions.

A somewhat similar situation occurred in the northern area in 1948 and 1949. In both of these years growers placed tobacco under loan which was subsequently moved into regular market channels by the government. The important fact in the above instances is that all three crops were disposed of in the same year that they were placed under loan. These facts suggest that the prices justified by existing supply and the derived demands of buyers were higher than would have actually obtained in the absence of the government program. It is apparently impossible at the present time to ascertain the magnitude of the difference between the prices actually paid and those justified by supply and derived demand; but the above examples do suggest that such a differential has at times existed.

The above analysis has attempted to illustrate the most obvious consequences of the present market structure upon those engaged in marketing tobacco in Wisconsin. It remains to be seen, however, whether feasible alternatives to the present market structure exist.

#### *Analysis of Attempted Market Reforms*

The preceding analysis of the major marketing problems confronting Wisconsin growers suggests that policies designed to alleviate their market disparity must be directed at either diminishing the market power of buyers or strengthening the market position of growers.

If we assume that the present concentration in the manufacture of cigars is essentially the result of economies of scale,

any efforts to decrease the market advantage of buyers must be restricted primarily to preventing the extension of market power already inherent in this structure. This end may be accomplished by nurturing any latent competitive inclinations existing on the part of buyers. Furthermore, only by the improvement of the sellers' market knowledge may the vacuum of market ignorance which buyers have so successfully exploited be destroyed. Several efforts for accomplishing these objectives have been undertaken in the past and are presently under way.

*Market News and Grading Service.* As mentioned previously, legislation was introduced into the Wisconsin legislature in 1949 and 1951 which would have required the Wisconsin Department of Agriculture to provide market news information and grading service to Wisconsin tobacco growers.<sup>20</sup> Although these bills failed passage in the Senate, the Attorney General's investigation of the Wisconsin tobacco industry further revealed the necessity for providing such services.

The Wisconsin Department of Agriculture conducted an experimental grading and market news reporting service beginning with the 1950 crop. These programs were expanded for the marketing of the 1951 crop. Under the present grading program, growers select several representative bales from their crop and bring them to the association warehouses where they are graded by a government grader and are placed under the government loan program. Armed with this information as to the relative quality of their tobacco, growers may face buyers with a more accurate concept of the rela-

tive market value of their crops. Further, they have an accurate estimate of the government support price for their individual crops, thus giving them complete knowledge of this market alternative. Unfortunately, it was impossible to get this program under way until buying had commenced in 1952 so that its potential benefits may not be fully appreciated this year since most growers undoubtedly have sold before getting an opportunity to get their crops graded.

In addition to the grading service discussed above, daily market reports, which are of a much more comprehensive nature (giving quantities sold, range and average prices for classes of tobacco), have replaced the weekly summaries of last year. It seems quite probable that if these programs can be further perfected they will have a beneficial influence on this market by increasing the growers' knowledge of their crops and of the market in which they sell them.

*Cooperative Marketing.* Although little comment has been made up to this point on the operations of the Northern Wisconsin Cooperative Tobacco Pool, analysis of its operations reveals that it has performed a very superior marketing service since its reorganization in 1936. The prices received for tobacco sold through this association have averaged approximately 15 percent higher than that sold by growers outside of the Pool. The association's higher prices are apparently due largely to its ability to determine the value of particular crops more accurately than do the individual growers. Another important advantage inherent in this association is that it is capable of contacting many more buyers (it sold to 12 buyers in 1949) than most individual growers.

The bargaining advantage presently possessed by the Pool is essentially restricted to its superior market informa-

<sup>20</sup> The necessity for these market services were pointed out in a research bulletin published in 1949. See: Henry H. Bakken, *The Marketing and Manufacturing of Wisconsin Stemming Tobacco*, Research Bulletin 162, University of Wisconsin, May 1949.

tion. One reason it does not possess additional market power is to be found in the manner in which it sells its members' crops. It does not pool its members' crops and bargain for their sale by lots on a collective bargaining basis, but rather acts as an agent, selling crops individually.<sup>21</sup>

It remains to be proven whether a more effective manner of marketing by a co-operative association in this market is feasible under existing conditions, but the success of similar associations in the South seems to warrant further study on this point. In any event, the Pool's success in marketing type 55 tobacco over the past 15 years strongly recommends that this association be expanded to include a larger percentage of the type 55 growers. A similar service would be highly desirable for those growing type 54 tobacco.

*Fair Trade Code.* The effectiveness of the code of fair trade practices, promulgated by the Wisconsin Department of Agriculture upon the request of the Attorney General's office, in alleviating market abuses is subject to considerable controversy in the Wisconsin tobacco industry.<sup>22</sup> This investigation has served notice to this industry that public recognition has been made of this problem.

Its major provisions declare that buyers cease and desist from certain practices. First, it makes illegal a group of specific collusive practices on the part of buyers. They are: the inducement of any other buyer "to refrain from paying more than a stated price," "to limit his purchases," "to confine his purchases . . . within a

prescribed area," to restrict buying to certain periods, or "to engage in any plan of intermittent or cyclic buying activity which may result in a reduction of market prices." The second provision declares it unfair "for any buyer to refuse to negotiate with any grower for the purchase of tobacco because such tobacco was graded or submitted for grade." This provision was designed to guard against any opposition on the part of buyers to any possible grading program instituted by the department. The third provision declares it to be unfair for buyers to "falsely represent that any particular lot or crop of tobacco was purchased at less than prices actually paid therefore," and "that any buyers have or will presently cease buying." The fourth provision specifies that no buyers "purchase tobacco under any contract which does not include a specific time within which delivery and payment are to be made."

Although legal recourse under existing statutes and the "common law" may be available for most of the above practices, they have been incorporated in a code to leave no doubt about their illegality. Those proposing this code recognized its limitations and fully appreciate that continued surveillance of the industry is essential to insure that necessary changes be made to meet new problems and more adequately deal with existing ones. Its most salutary consequences may not be the complete elimination of old abuses, but it may act as a deterrent to existing and to future marketing abuses. This threat of potential action has probably been one of the major contributions of our national anti-trust policy.

#### *The Probable Consequences of the Attempted Reforms*

That this code and the other programs recently promulgated may have had a salutary effect upon the marketing of

<sup>21</sup> It is of significance that the pooling of crops under the old Pool was one of its members' chief criticisms. This was due to limitations in the management or technique of pooling crops of various grades in the old association rather than pooling as a practice in itself.

<sup>22</sup> General Order 138, Effective January 1, 1952. The authority for the issuance of such codes by the Department of Agriculture is provided by Sections 93.18 and 100.20 of the Wisconsin Statutes.

Wisconsin tobacco has been suggested by certain apparent changes in the marketing of the 1951 crop.

First, preliminary investigation suggests that the average prices paid for this crop have remained quite steady throughout most of the marketing period, as contrasted to the declining price pattern, illustrated by charts I, II and III, above.

Second, the buying pattern has been continuous without any "pulling in" of buyers which has often characterized the buying pattern in this market.

Third, the range of prices paid for non-binder tobacco is considerably greater than that existing in recent years which have been characterized by flat prices for practically all lower grades of tobacco.

Fourth, there does not seem to be a flat ceiling price for top quality tobacco as has been the case in recent years. A premium is apparently being offered for the highest quality tobacco as contrasted to a top price at which practically all the higher grades of tobacco have often been sold. (In 1948, 21 percent of the total binder tobacco sold for a flat 50 cents per pound and in 1949, 29 percent sold at 50 cents per pound with only a few crops being sold above 50 cents in 1948 and 1949.) This year a larger amount of the highest quality tobacco is apparently being purchased at one cent intervals and even one-half cent intervals as contrasted to the practice of quoting most prices at flat five cent intervals. This has customarily occurred in over 65 percent of binder tobacco sold outside the Pool.

Fifth, contrary to the assertion made during the investigation, there is no diminution in sales or willingness on the part of the large tobacco firms to purchase Wisconsin tobacco as a result of the Fair Trade Code.

Finally, possibly one of the most desirable results of the recent efforts to

improve the market position of Wisconsin tobacco growers has been an apparent change in the fatalistic attitude of many growers toward their opportunity of getting just treatment in this market. As was pointed out previously, growers' expectations of future price declines may at times actually encourage the occurrence of such a phenomenon. It seems probable that the attitudes of many growers may be changed on this score if they are assured that public authorities have taken an active interest in their plight.

The limitations of the concerted efforts designed to improve this market are readily admitted by those responsible for their promulgation. The authors are of the opinion that these efforts designed to create an alternative market structure and improve the growers' market knowledge and attitude will serve to mitigate the abuses and disadvantages which have so often been inimical to the interests of Wisconsin tobacco growers.

#### *Significance of this Case Study to Economic Theory*

Several general observations of interest to economists seem to be warranted from this empirical analysis of a particular market structure composed of few buyers and many sellers.

First, this study suggests that in a market structure of this type the market behavior of most firms conforms quite closely to that suggested by oligopsony theory, i.e., each firm seems to recognize both the direct and indirect results of its behavior upon its rival's market activity, and consequently a "community of interests" is apparently established among buyers resulting in behavior conducive to their mutual advantage.

Second, when conflicting interests arise between large and small firms, possibly due to differences in their demand conditions or differences in expectation as to what constitutes their individual best in-



terests, it may become necessary for the larger firms to intimidate the smaller ones in order to prevent prodigal behavior detrimental to the "best interests" of the group.

Third, in the absence of perfect knowledge, other than tacit agreement may become necessary at times in order to insure that the best interest of the "group" are attained. That is, it may tend to create a climate requiring formal operating agreements because uncertainty of rival

market behavior makes tacit agreements impossible.

Fourth, additional factors peculiar to a particular market, such as inadequate market knowledge and relative immobility of sellers, may enhance any potential market power of buyers created by a given market structure.

Finally, policies designed to make competition more effective must be based on *ad hoc* considerations of the market analyzed.

# The Land Settlement Program of Finland†

By KAARLO UOLEVI PIHKALA\*

AS A consequence of defeat in war, Finland was compelled to adopt an emergency program to provide farms, homes and productive work for nearly 11 percent of its total population, who left the territory surrendered to Russia. The subject of this paper is mainly the land settlement part of this emergency program. Some historical background will be given by brief reference to earlier land policy and programs.

## *Earlier Development and Land Reform 1918*

The Finns, in their homeland and elsewhere, are traditionally attached to the land and land clearing to carve cultivated land out of forest and peat areas. This is the history of the settlement of Finland, hard work of individual families seeking a livelihood by their own work on the land. Thus, they cleared from 1920-1929 roughly 600,000 hectares<sup>1</sup> (about 20%), with almost no aid of machinery. Since the last war, with some mechanization, 140,000 ha. of land have been cleared for cultivation. In short, 740,000 ha. have been cleared in the years of Finnish independence, or about one-fourth of the present total of cultivated land.

The state sponsorship of land settlement, until the end of the last century, was on a minor scale only. There was significant agricultural overpopulation in the beginning of this century, before the advent of industrialization. While only 23% of the rural families were inde-

pendent owners, about 43% of families were without land, and 34% were tenants. Most of them were small leaseholders paying their rent by day labor. This kind of leasehold caused much social grievance and great insecurity of occupancy.

After the parliamentary reform (1907), the leaseholders gained more security by approval of a law (1909) concerning special kinds of tenancy. The claims for more far-reaching reform, intensified by the unfortunate events of Civil War, led to the approval of a new law (1918) which entitled the leaseholders to buy out on very favourable terms the land they had cultivated. This was real land reform. It made about 67,000 small tenant farmers into independent landowners, and provided some 55,000 cottagers with ownership of their dwelling sites. It is a very remarkable stage in the history of land tenure in Finland. The most socially undesirable forms of tenancy were totally wiped out. Common opinion in Finland is that this reform has remarkably strengthened the self-esteem and patriotic feelings of our agricultural population.

The principle of compulsory expropriation of land was applied for the first time in this law of 1918. It presupposed compensation—maybe this compensation was rather formal, in consequence of inflation, which cut the value of money by 90%. Once approved, this principle survived in the more recent settlement laws, though compulsory expropriation was applied only in very few cases.

## *Land Settlement Policy: 1918-1939*

During the first years of independence, there was much enthusiasm to improve

† The material presented in this article was originally prepared for presentation at the First World Land Tenure Problems Conference held at the University of Wisconsin, November 1951. The statistics on land acquisition and settlement have been brought up to date, as of January 1st, 1952.

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<sup>1</sup> One hectare is 2.471 acres.

the social conditions not only of leaseholders, but also of other landless rural people. As a result, the Land Settlement Act, sometimes called *Lex Kallio*, named after Prime Minister (later President) Kyosti Kallio, was passed in 1922. This law provided for acquisition of land, by the state or communal aid, for any Finnish citizen, who met certain conditions, and who otherwise could not become an owner of a farm or dwelling site. The acquisition of the land was on a voluntary basis, with the financial support of the State Settlement Fund, empowered to grant loans for the buying of land, construction of buildings, and for working capital. If the applicant could not find a reasonable opportunity to get land, he was entitled to ask the Communal Settlement Board to acquire land for him from state-owned land, or from land owned by the church, municipalities, corporations or private persons. Compulsory expropriation of land was presumed if land could not be obtained otherwise.

Certain preferences and limits too complex for discussion here were specified in the law of expropriation. Those liable were first the owners of neglected farms, the real estate speculators, corporations whose activity did not exclusively concern agriculture, and, finally, the other landowners beginning with the owners of the largest estates. There was, in principle, no limitation on expropriation, except the maximum size of holdings established according to this law (20 hectares of cultivable land and the forest land necessary for home needs). This limit was to be applied only in the case of absentee owners who had neglected rational cultivation. Other land could be expropriated only according to limits of a progressive scale (1-50%), if the total area of the estate, without waste land,

exceeded certain limits (in South Finland, 200 hectares).

The Land Settlement Law of 1922 was amended in 1936 by a new law, whereby the expropriation from private land was presumed, only for acquisition of additional land, to enlarge holdings that were too small. The maximum size of settlement holdings, in terms of cultivated land, was reduced from 20 to 15 hectares.

The significance of compulsory expropriation in the settlement policy between the two World Wars was negligible. The expropriation was used only for establishing 29 new holdings and acquiring additional land for 112 small holders. In contrast, the total number of new holdings established by state aid was 41,171, and the number of additional allotments, 17,573. It is clear, therefore, that voluntary operations or grants from state land were overwhelmingly dominant (see Table I). The state and local governments bought many large holdings

TABLE I—THE "NORMAL TIME" SETTLEMENT IN FINLAND  
1899-1949

	New Holdings	Additional Allotments	Total Area, 1,000 Hectares
On State-owned land.....	6503	2145	341,700
On the land purchased by State or local government.....	6280	1333	253,400
On the land purchased by applicants themselves.....	28359	13983	602,400
On expropriated land.....	29	112	2,000
	41171	17573	1,199,500

and divided them for settlement purposes. Of the number of new holdings established by Settlement measures only about 26,000 were classified as agricultural holdings. As the number of farms having more than 0.50 hectares of arable land increased during the period 1901-1941 from about 200,000 to about 300,000, the

"normal time" Settlement measures account for  $\frac{1}{3}$  of the increase in the number of new holdings.

The industrialization of the country, aided by emigration, absorbed the excess rural population during the first half of the twentieth century. The agricultural population, in fact, decreased slightly while total population grew rapidly. A much larger part is now classified as owner-ship than in the beginning of the century.

#### *The Need of Resettlement After Second World War*

It is widely known that the people of those areas which were ceded to Russia by the peace-treaty of Moscow in 1940, by the Armistice Agreement in 1944, and the Peace Treaty of Paris in 1947 spontaneously left their homes and emigrated to the territories still under Finnish sovereignty. This population totalled<sup>2</sup> 480,000, of whom 230,000 were farm people. The latter comprised about 40,000 families who had tilled about 300,000 hectares and whose entire holdings had been over 1,500,000 hectares. Only a few of these families had owned medium-sized or large farms; the average size of their farm in the lost territories had been somewhat less than 8 hectares, cultivated land.

The problem facing the Finnish people was to furnish these families with the means of livelihood without the economic burden becoming too heavy for the rest of the people, on top of the reparations and other heavy burdens of war. It had to be done within the reduced resources of Finland, a country with large forests, but comparatively small agricultural resources. The agricultural area—fields and natural meadows—is 2,724,000 hectares, only about 9% of the total area,

while the productive forest land is about 62% of the total area of the country and waste land about 19% of the total. This includes also peats, to a large extent cultivable after draining, but situated mostly in the northern part of the country which is climatically unfavorable for farming. Various estimates show that in the southern part of the country at least 760,000 hectares are cultivable after reclamation, while in the northern part, 1,200,000 hectares of open peat land are cultivable.

Before the war, of the total area of the present territory 35.2% was owned by the state, 1.4% by municipalities, 0.8% by the church and other religious bodies, 7.5% by corporations, and 55.1% by private owners. Only about 11% of the state-owned land was situated in the southern half of the country, and only a fraction (0.6%) of it was agricultural land, having unfavorable climate. The state as well as other corporate owners were thus largely owners of forestal resources.

About 93% of tilled land was privately-owned, of whom only a few persons did not cultivate it themselves. The statistics of holdings of various-size classes show that only 12.6% (288,000 hectares) of arable land belonged to holdings with more than 50 hectares of plow land. These holdings numbered about 3,200 and included also state and corporate-owned units. Middle-sized farms—with 15-50 hectares of field area—were more than twelve times as numerous and consisted of 865,000 hectares (37.7% of total cultivated area). If simple distribution methods were used, these groups would be first under consideration as potential sources of land.

#### *The Principles of Resettlement*

With strong unanimity seldom found among Finnish people, the principle of

<sup>2</sup> Mostly inhabitants of Karolia, eastern province of Finland.

resettling displaced population was approved after the end of the winter war (1939-40). There was discussion only as to how this principle should be applied in the resettlement program with least disadvantage to national economy. There were two opposing opinions on the methods of resettlement. One of these held that the resettlement should be based largely on land reclamation with public aid, while the other aimed mainly to divide and redistribute the existing cultivated land. From a purely economic point of view, the former was favored because the capital values of existing buildings and machinery could be better retained and the extension of cultivated area would increase the total capacity of agricultural production. The supporters of this view stressed also that the burden on landowners would be more equally distributed if cultivable forest land were taken into account when determining the quota of land to be given up for settlement. Many farms of considerable size, if measured in forest area especially in the lake district of middle Finland, were very small in terms of cultivated area. The opponents of this opinion stressed the necessity of rapid realization of the settlement program and the social dangers eventually arising from the settling of Karelians in areas (in central and northern Finland) where climatic and soil conditions differ from those they had been accustomed to farther south.

There were different opinions, also, concerning the use of state and corporate land for resettlement purposes. The Socialist Party generally opposed the use of state and community land for settlement. Only very few supposed that the resettlement program was attainable through voluntary operations only.

*The Rapid (Emergency) Resettlement Act  
(1940)*

In June 1940, only three months after the Peace of Moscow, the first emergency law, "the Rapid Resettlement Act," was passed by the Diet. According to this law, the citizens in the ceded territory who had earned their livelihood or a substantial part of it by agriculture or fishery were entitled to land if they had not been land speculators or had not neglected their farms. For persons whose holdings had been too small or of uneconomic size, the allotments could be to some extent larger than their holdings on the ceded area. On the other hand the maximum area of cultivable land for new holdings was fixed at 15 hectares. The number of applicants was 38,873, but only 28,939 were entitled to agricultural holdings (over 2 hectares of cultivable land). The law gave broad powers for land expropriation. The state was first among the owners obligated to turn over all the land for colonization. Next came the municipalities, religious bodies, business corporations, and private persons classified as speculators or as having neglected their farms. Next after these, in order of obligation to turn over the land demanded, was the ordinary farmer who had more than 15 hectares of cultivable land and appropriate forest areas. They were due to surrender land down to that limit.

Modesty and rational deliberation were displayed by the executive committee. It was composed mostly of young surveyors and graduates in agriculture and in forestry. A certain degree of elasticity was caused by the fact that the law allowed for land surrenderers the right to buy land from other persons who were not obliged to surrender land, and to use that land to fulfill the obligation. The price of land was to be de-



terminated at the average current price for 1934-38 of land used for agricultural and dwelling purposes.

The supporters of the idea of land reclamation as a basis for resettlement established in 1940 a joint stock company (Pellonraivaus Oy) to perform land clearing with modern machinery and reclamation. This company, which later got a large part of its capital from the state, has contributed very much to the adoption of modern methods in land clearing. Still, by far the greater part of the land clearing is done by the individual farmer using horse, grubbing hoe and brawn.

According to the plan for resettlement, about 170,000 hectares of cultivated and 161,000 hectares of cultivable land were needed for this purpose. Only about  $\frac{1}{2}$  of the planned area was acquired when settlement activities were interrupted by the second War (1941). The number of established new holdings was 8,422, including 2,334 dwelling sites—not regarded as agricultural holdings—and 603 part-time holdings. Of all these holdings 7,752 were inhabited at the outbreak of the second War.

#### *Legislative and Other Measures: 1941-1944*

The ownership rights in the ceded area were restored by a special law, passed in December 1941, after the Finnish troops had reoccupied the lost territory. The earlier owners of land were regarded as owners if they gave up their rights to new holdings. This law encouraged the return of Karelians to their home regions, and only 982 of them retained the new holdings which were established according to the Rapid Resettlement Act.

Because of the vast war devastation, much reconstruction work was necessary. The Karelians rebuilt about 22,000 farm buildings, among them 7,357 dwellings. Loans were granted, in total 11 billion

marks, i.e., 27.5 million dollars, for this purpose.

At the same time, legislative measures intended to improve the size and parceling of Karelian small holdings were effected. These were regarded important, especially in the regions which were totally devastated during military operations.

A special Committee was appointed in 1941 to outline the settlement policy after the war. It studied not only the problem of possible rehabilitation of the land expropriated according to the Rapid Resettlement Act, but also the problem in a broader sense and especially how to meet the settlement requirements of the disabled ex-servicemen, war widows, war orphans and the front-line veterans. The Committee included in its recommendations, published in 1943, a special settlement law to meet the needs of these groups.<sup>3</sup> The proposed law was rather radical, including compulsory expropriations, though only in a minor degree. To anticipate the policy outlined in this project, a law was passed early in 1944 in which all voluntary transfers of land to the people belonging to the above-mentioned groups were to be taken into account in any future legislation dealing with expropriation quotas.

#### *The Land Acquisition Act: 1945*

The military defeat in 1944 with still greater loss of territory called forth the same problems as were met in 1940, but in still more acute form. The number of displaced persons was increased by the families of Petsamo and Porkkala areas, the latter area being leased for a fifty-year period. The country's financial condition was much worse than in 1940 and the fertility of the soil was to a large extent depleted by the lack of fertilizers. There were new claims for land, encouraged by

<sup>3</sup> Komiteanmietinto, 19.7, 1943.

certain wartime promises to front-line soldiers. An inquiry in 1945 indicated a total number of applicants for land of more than 208,000, which number was reduced to 156,000 when the applicants who did not meet conditions of the law had been eliminated. Only 46,000 of the applicants were from ceded areas. The rest were from among the land-hungry who were eligible for land under the new law.

Claims were advanced, the approval of which tended to limit the area where compulsory expropriation could be effected. Thus, the Swedish population living in certain regions on the southern and western coast demanded that the Finnish-speaking farmers should not be placed in Swedish-speaking or bilingual communes to any extent which would alter the linguistic character of the population. The Karelians who lost their homes in the south claimed that the northern limit of their settlement on a compulsory basis should not be drawn farther than on the line, Kokkola-Joenauu (about 64° Lat.). These matters are mentioned in passing merely to illustrate certain practical difficulties encountered.

A special Committee, appointed in 1944, drafted a proposition for a new radical resettlement law, which, as to land expropriation, was based on almost the same principles as Rapid Resettlement Act.<sup>4</sup> When this draft was considered in the Council of State, a counter-proposition was presented. Its purpose was to save the agricultural holdings from too heavy expropriation by fixing a progressive scale. This scale provides for different sizes of maximum farm limits of expropriation. The forest land was also taken into account and was converted into the equivalent of cultivated areas. According to this proposi-

tion, about 125,000 hectares of cultivated area were to have been used for resettlement, with reclamation satisfying the rest of the land requirement. To encourage the establishing of farms on cultivable forest and peat land, a special award was provided.

The Land Acquisition Act, passed in May 1945, was based mainly on the principles drafted by the committee. Those first entitled to land were all displaced persons having owned or leased land on long-term conditions on the ceded territory. In the second place were put disabled ex-servicemen, war widows, and war orphans; and, in the third, all ex-servicemen with families who had taken part in military operations. Leaseholders and agricultural workers losing their employment in consequence of land surrender were also included in this group. To obtain an agricultural holding persons in the second and third group were required to have such experience and skill in agricultural work as was regarded necessary for independent cultivation of the land.

The maximum size of agricultural holdings given to a single person was in southern Finland; 15 hectares of cultivated or cultivable land with a forest area producing normally 75-125 cubic meters of timber yearly (corresponding to about 25-40 hectares of average forest land). Within localities where possibilities existed for permanent non-agricultural earnings, provision was made for dwelling sites with cultivable areas not exceeding 0.5 hectares or part-time holdings not exceeding 2 hectares. Larger types of part-time holdings with respective areas of 2-6 hectares were fixed for localities offering good marketing possibilities and other conditions for intensive farming or adequate subsidiary earnings from industry, forestry, fishing, etc. Additional land in the form of cultivable

<sup>4</sup> *Ibid.*, No. 3, 1945 (1.12, 1944).

land, not reclaimed, was to be given to persons in the above-mentioned groups if their holdings were too small and if it seemed likely to be serving the purpose.

Landowners obliged to relinquish land were divided into two general categories—primary and secondary, as under the earlier law described above. The primary group consisted of the state, owners of neglected farms, real estate speculators, corporations, the church, local governments (municipalities), foundations, and “amateur” farmers—landowners who were not really farmers by occupation. The secondary category consisted of farmers proper, those deriving their livelihood chiefly from farming.

The lands belonging to primary surrenderers were subject to expropriations without any limitations, except that the land inevitably needed for public agricultural education and scientific institutions or industrial or recreational purposes was to be saved and the “amateur” farmers were allowed to keep an area corresponding to the size of the dwelling site. For secondary surrenderers, a minimum limit equal to the maximum size of settlement holdings was fixed in the Land Acquisition Act. If the owner had two or more children who were not earning their livelihood outside of farming, the area corresponding to the size of the agricultural holding (15 hectares of agricultural land) was to be allowed for the second child and half of it for each of the other children.

As the law sought to avoid measures which were apt to weaken the productivity and profitability of agriculture, a scale for land expropriation for secondary surrenderers was fixed by Resolution of the Council of State, June 1945 and amended July 1946. According to the latter, the maximum percentage of surrender was fixed on a basis of the total area of cultivated land, as well

as cultivable meadow and open pasture land; both converted according to a value equivalent to that of cultivated land. This percentage varied in different size classes.

TABLE II—PERCENTAGE OF SURRENDER ACCORDING TO SIZE CLASSES

Size Class	Percentage of Surrender by the Lower Limit	Percentage of Surrender for the Part Exceeding the Lower Limit
25-35....	10	45
35-50....	20	53
50-100....	30	60
100-200....	45	75
200-400....	60	80
400-800....	70	90
over 800....	80	90

If the above-mentioned area was less than 25 hectares, and if the farm had cultivable land, the surrender should not be greater than would allow for the owner a total of 22 hectares of cultivated and cultivable land.

According to the law, compensation for the land was to be paid on the basis of “justifiable current” local price levels prevailing at the end of December 1944. In practice, this price level was fixed, using the estimates of taxable income made by the Ministry of Finance in cooperation with the Research Bureau of the Board of Agriculture and local authorities, and capitalizing this taxable income by multiplying it by 14 or 15. The compensation was not to be paid in cash, but with state bonds payable after 15 years and yielding 4% interest. The inflation later wiped out  $\frac{1}{2}$  of their value, but those bonds could be used instead of money when paying the very heavy Second Property Expropriation Tax which was in the nature of a capital levy. Hence, the landowners, on the average, probably did not suffer more than did other owners of property.

A special law, the Voluntary Acquisition Regulation Act, encouraged the voluntary transfer of land to the persons entitled to get land according to the Land Acquisition Act.

The recipient of land had to pay the state for it in annual installments, beginning after the holding had been five years in the hands of the new settler. The annual payments were 5% of which 3% was regarded as interest and the rest as amortization.

The Karelians got compensation for their property losses according to a special Second Indemnity Law. This was given in the form of state bonds, which contained guarantees against inflation. Those bonds were to be used for payment of land, but only according to their original face value, to prevent speculative operations in those bonds in payment for land. The law provided that the displaced population should be settled, as far as possible, in areas where natural conditions were similar to those to which they were accustomed. Moreover, it provided that former neighbors should be resettled, as far as practicable, in the same locality in order to retain their social relations.

The settling of Karelians in Swedish-speaking communities was limited according to the "language paragraph" of the law, designed to preserve the language composition. In addition to the Swedish-speaking families of the Porkkala area, only about 1,000 have been located in these communities. The landowners of these communities, however, have been obliged to perform or support land reclamation operations, and therefore have not escaped the economic burden of the resettlement program.

The law provided, also, special subsidy for settlers willing to establish new holdings on cultivable land. This subsidy amounted in the beginning to 200,000-

280,000 marks (2,200-3,100 dollars), but has been increased during the depreciation in the value of money. For land clearing, other subsidies have been granted.

A special law was approved at the time of the Land Acquisition Act to provide the necessary credit for resettlement. According to this law, the recipients of the land were entitled to get loans from the State Settlement Fund for purchase of land, land clearing, construction of buildings and purchase of machines and implements. The loans were granted, to the extent the budgetary means were available, through cooperative credit societies or savings banks, and the state guaranteed repayment of a part, at maximum 25%, and in exceptional cases 35%, of the amount of offered security. The interest on these loans has been the same as on other loans granted by the Settlement Fund, i.e., 3%, which is a very low rate in Finland.

In addition to these, some other related laws were enacted. These include the Preliminary Land Clearing Act, authorizing regional boards under the supervision of the Ministry of Agriculture, to perform land clearings on suitable areas; the Common Forest Act, under which the establishment of common forests in districts where scarcity of forest land made it difficult to provide individually-owned parcels; and the Pasture act to promote cooperative pastures, improved and used according to modern methods. The last two of these forms of land use have as yet been applied only to a small extent; the common forests comprise at the present time 59,000 hectares, i.e., 3.1% of the total area of established holdings, while the cooperative pastures have an area of hardly 1% of the total area.

*Execution of the Land Acquisition Act*

The administration of the Land Acquisition Act has been entrusted to the Department of Land Settlement in the Ministry of Agriculture. Local organs include the land redemption boards, responsible for expropriation measures, and the settlement boards, with the duty to locate the applicants for land. The first of these boards has a surveyor engineer as chairman, a graduate in agriculture and a forester as expert members, and two lay members as representatives of land recipients and land surrenderers. The settlement boards have a graduate in agriculture as chairman, one representative of the land surrenderers and two of the land recipients as members. Both boards are situated in the same locality and work in close cooperation.

At the beginning of resettlement activities there were 147 boards of both kinds. The intermediate stage in this organization consisted of eight supervisory bureaus and eight courts of appeal. The setting-up of the resettlement farms, i.e., the next phase of execution following upon the creation of the new farms, was

managed by the local organizations of the Central Association of Agricultural Societies. This organization aided the settlers with the design of buildings, the planning of roads and drainage construction, and land clearing; and gave advice on all management problems. Most extensive drainage and construction work was performed by the local organization of the Engineering Division of the Board of Agriculture. Some executive proceedings were entrusted also to provincial forestry boards and the Pasture Association.

In the execution of the Land Acquisition Act, up to the end of the year, 1951, a total of 1,911,000 hectares of land were acquired (see Table III). This is about 12% of the area of southern Finland, two northern provinces excluded. Of this total area, 507,000 hectares are taken from state-owned land and 614,000 hectares from other non-private owners. The land, bought or expropriated from private owners, consisted of an area of 790,000 hectares, including 195,000 hectares of cultivated land, as compared

TABLE III—LAND ACQUIRED EITHER BY VOLUNTARY TRANSACTIONS OR COMPULSORY EXPROPRIATIONS THROUGH 1951: AREAS ACQUIRED UNDER THE RAPID RESETTLEMENT ACT ARE INCLUDED  
*thousands of hectares*

Owner Group	Agricultural Land	Cultivable Land	Forest Land	Waste Land	Total Land	Per Cent
State.....	20.1	49.2	398.8	39.0	507.1	26.5
Municipalities.....	15.3	14.0	76.4	2.9	108.5	5.7
Church, etc.....	18.2	15.5	66.4	1.6	101.7	5.3
Corporations.....	33.6	59.9	303.7	6.8	404.0	21.2
Private Owners.....	194.7	110.6	467.1	17.3	789.7	41.3
Primary Surrenderers <sup>1</sup> ....	(39.9)	(28.0)	(141.2)	(7.1)	(216.2)	(11.3)
Secondary Surrenderers....	(106.7)	(58.6)	(208.6)	(5.4)	(379.2)	(19.8)
Others <sup>2</sup> .....	(48.1)	(24.0)	(117.3)	(4.8)	(194.3)	(10.2)
TOTAL.....	281.9	249.2	1312.4	67.6	1911.1	100.0

<sup>1</sup> Amateur farmers, land speculators, and owners who have neglected cultivation.

<sup>2</sup> Including owners not liable to expropriation and owners having surrendered under Rapid Settlement Act.



with 87,000 hectares from non-private owners.

Of the transactions up to the end of the year 1951, voluntary operations embraced an area of 589,000 hectares. Most of this area was land subject to expropriation; but more than one-fifth of it was bought from owners who were not liable to expropriation. Only about 63,000 hectares of expropriated land were classified as neglected land and 4,200 hectares as owned by land speculators. The number of land units formed or transferred according to the Land Acquisition Act and the law concerning voluntary transfers was, until end of year 1951, around 125,000 (see Table IV). This included around 28,000 agricultural holdings with potential cultivated area of 6-15 hectares; about 36,000 part-time holdings with from 0.5-6 hectares of cultivable area; about 31,000 dwelling sites, and about 25,000 additional areas to be turned over to existing small farms to enlarge their holdings.

An idea of how the new holdings are distributed to different groups of land recipients is given in Table V, which

shows the number of farms either bought by or contracted to present holders. (Most of the expropriated land is first contracted to future owners for five years).

Displaced families have received about 38,000 holdings, the total figure of land units being 118,000. As the families of the first-mentioned group deserving land have generally been resettled by now, about 18% of the families belonging to this group have given up their intention to acquire land.

Though the displaced families thus form only about 32% of the recipients of land, their share of the total amount of land is larger, about 59% (see Table VI). Their share of the cultivated land is 63%.

At the present time, some statistical data are available to show how the execution of the Land Acquisition Act has changed the number of holdings and the acreage in the different farm-size groups. According to these data the number of farms with 100 hectares or more of cultivated area has been reduced from 790 to 227 and those with 50-100 hectares, from 2,500 to 1,281. About

TABLE IV—NUMBER AND AVERAGE SIZE OF LAND UNITS IN HECTARES FORMED OR TRANSFERRED  
• ACCORDING TO THE SETTLEMENT LAWS OF 1945 THROUGH 1951

	Number	Average Cultivated Land	Area Cultivable	Other Land	Total
Agricultural holdings					
(6-15 ha.)	27,641	7.1	6.5	33.4	47.0
Part-time holdings					
(2-6 ha.)	14,297	3.0	2.3	14.3	19.6
(0.5-2 ha.)	21,039	0.7	0.3	0.8	1.8
for fishermen	677	2.2	0.8	10.1	13.3
Dwelling-sites	30,787	0.1	0.0	0.1	0.2
Common pastures	1,545	1.8	5.0	2.8	9.6
Common forests	59	.....	.....	1000.0	1000.0
Additional areas	24,648	0.6	0.7	5.4	6.7
Other areas	4,538	.....	.....	4.0	4.0
TOTAL	125,231	2.2	1.9	10.9	15.0

TABLE V—LAND UNITS BOUGHT BY OR CONTRACTED TO PRESENT HOLDERS, BY CATEGORIES OF LAND RECIPIENTS, JANUARY 1, 1952.

	Agri. holdings	Part-time holdings	Dwelling- sites, etc.	Total
Displaced families. . . . .	19,622	13,362	5,168	38,152
Disabled ex-servicemen, war widows & orphans. . . . .	1,126	3,737	5,157	10,020
Ex-servicemen with families. . . . .	6,072	16,053	20,233	42,358
Former leaseholders & agri. workers. . . . .	826	2,773	855	4,454
Recipients of additional land. . . . .	.....	.....	23,487	23,487
TOTAL. . . . .	22,646	35,925	54,900	118,471

170,000 hectares or about 60% of the cultivated area of these size classes have been transferred to size classes under 15 hectares.

#### *Economic Burden Caused By Resettlement*

The execution of the Resettlement Program has been a heavy economic burden. The Government has taken the responsibility of extensive road construction and drainage operations. Only a very small part of the cost of these can be put on the shoulders of land settlers. About 9,000 kilometers of new roads have been planned, and 8,200 already built for the needs of about 37,000 new farms. The drainage operations are planned for an area of 200,000 hectares of which 149,000 hectares are drained. During the years 1945-1951, 3.9 billion Fmk. (20.6 mil-

lion dollars) from the public budget have been used for these purposes.

The state has paid for establishing subsidies for such land recipients who have voluntarily taken holdings on uncleared forest and peat land (called "cold" farms) in an amount of 2.89 billion Fmk. (15.3 million dollars). At the end of year 1951, the number of such farms was 11,800, whereof about 1,000 were still without holders.

In addition to these, special subsidies for land clearing have been paid by the Government. These subsidies amounted during the same time to 3.73 billions of Fmk. (19.9 million dollars). With this subsidy, more than 140,000 hectares of uncultivated land were put into cultivation. The state has also provided large

TABLE VI—LAND AREA BOUGHT BY OR CONTRACTED TO PRESENT HOLDERS, BY CATEGORIES OF LAND RECIPIENTS, JANUARY 1, 1952  
*thousand of hectares*

	Agricultural Land	Potential Agri. Land	Other Land	Total
Displaced families. . . . .	172.7	130.2	741.1	1044.0
Disabled, widows, orphans. . . . .	13.0	12.1	63.2	88.3
Ex-Servicemen. . . . .	62.2	56.1	295.3	413.6
Leaseholders and workers. . . . .	10.3	7.4	44.3	62.0
Recipients of additional land. . . . .	15.0	16.1	125.8	156.9
TOTAL. . . . .	273.2	221.9	1269.7	1764.8

sums of money as loans to land recipients. The amount of loans granted during years 1945-51 is 29.8 billion Fmk., i.e., 181 million dollars. Most of this sum (around 25 billion Fmk.) is granted for construction of buildings. During this time 45,400 new dwellings, 21,700 barns and 38,000 other buildings were constructed.

The loans for purchase of land amounted to 2.6 billion Fmk., while those for equipment were, according to the statistics, 2.4 billion and for land clearing, 0.1 billion Fmk.

It has been calculated that by the end of 1951 the total amount of public funds used for resettlement in form of loans, compensations and subsidies will have reached a total of 52.3 billion Fmk. (278 million dollars).

#### *The Financial Position of Settlers*

According to an investigation of around 4,000 agricultural holdings established under the Land Acquisition Act, the average cost involved in acquisition of land, in the construction of buildings, equipping the farm, and land clearing amount to an average per farm of 2,325,000 Fmk. (i.e., \$10,060). This figure refers to average holdings, with potential cultivable area of 12.2 hectares of which 5.9 is under cultivation and with total area of 39.8 hectares. The cost of buildings was 57.5% of all costs. The other costs were in order; land, 15.9%; equipment, 12.8%; land clearing, 12.8%; other, 1.5%. The value of family labor constituted 19.1% of the computed costs, while invested capital was 11.9%. The part of loans from Resettlement Funds was 34.0% and private loans 5.2%; while various subsidies contributed 12.3%. This investigation shows that resettlers are rather heavily indebted, their debts being about 40% of the value of investment.

#### *Assumed Economic Consequences of Resettlement*

The land reform programs of Finland up to the Winter War of 1939-40 were matters of deliberate choice in public policy, and the results have been good from the standpoint of economic, social and political considerations. The resettlement program after the war was an unavoidable consequence of the war with the loss of territory in which lived about 11 percent of the population: and these people left their homes and farms and moved into the Finland that was not lost. The consequences of their resettlement cannot be judged in economic terms alone. Yet some of the farm-economic results may be noted in conclusion.

The splitting of middle-sized and large holdings in a country where these have been regularly operated by the owner and only seldom exceed the optimum size of management means diminished possibilities of mechanization. Very large capital values are lost in buildings and equipment that cannot be used fully after reduction in the amount of land in the farm. This is true especially in cases where there has not been the possibility to compensate the loss of land with new land clearing. Increase in the number of farms on the same cultivated area has led to an increased number of workers and draught animals. According to the statistics, we, in fact, have in the present territory, about 55,000 more horses than before the War.

On the other hand, it has been pointed out that the expropriation of cultivated land has, in most cases, concerned the most distant fields of farms subject to expropriation. These fields had often been extensively used and adding them to new farms situated nearby may lead to more intensive cultivation and higher yields. This may compensate to

some extent for the disadvantages of the fragmentation of holdings.

The reduced average size of farms probably will, to some extent, alter the composition of farm production. The small farms tend to produce relatively more animal products than larger ones which often have specialized more in cash crops. This may increase our imports of grain and cause a need for larger exports of animal products, and thus create new marketing problems.

The large sums spent for execution of the resettlement program were, of course, not always used very profitably. If alternate use of this money, for example, for improving machinery, extending

drainage, etc., had been possible, it might have been economically more advantageous. It must be pointed out once more, however, that our resettlement program was an unavoidable emergency program. We were compelled by very hard facts to adopt such a program in order to redress the economic loss and social injustice that the war had heaped upon a large part of our people. To have done otherwise than to meet this challenge by some such program as that which I have attempted to describe might have brought consequences far more serious than the fiscal burdens and the farm-economic maladjustments to which I have alluded.

## A Rubber Railroad in Ohio

By PAUL J. GARFIELD\* and GEORGE W. THATCHER\*

**E**ARLY in 1949, in Cleveland, Ohio, Mr. H. B. Stewart, Jr., President of the Akron, Canton and Youngstown Railroad Company, announced plans for a revolutionary mode of cross-country transportation for millions of tons of coal, iron ore, and limestone. Riverlake Conveyor Belt Lines, Inc., was organized to construct and operate a 130-mile conveyor belt system which would link Lake Erie at Lorain with the Ohio River at East Liverpool. Youngstown and Cleveland would be served by spurs as indicated on the accompanying map.

### 1. The Conveyor Belt

The Riverlake conveyor would be composed of a series of 172 separate belts, or flights, running across country to take advantage of the most level terrain. These individual belt flights would run from distances ranging from 2000 to 3800 feet, depending upon the contour and gradient of the right-of-way. At the terminus of each flight, or transfer point, the load would pour automatically onto the next belt in line. The Riverlake belts would carry loads in two directions, utilizing top and return runs of the conveyor by reversing the belts at each terminus in such a way that the return run of the belt rides on the same plane as the top run—instead of directly beneath it.

Enclosed for their entire distance in a steel gallery mounted on an elevated structure 22 feet above ground, supported at this minimum height by steel bents located 125 feet apart, the main and spur lines would be able to span all highways, railroads and rivers at sufficient elevation to clear all traffic and to permit normal farming operations under

the line where it crosses fields. The steel gallery enclosing the belts would be 8 feet high and 18 feet wide and would provide ample space for workmen to move along a lighted walk to service belts or idlers. It would allow year-round operation in spite of possible adverse working conditions created by snow or rain.

Ore vessels would be unloaded at new dock facilities in Lorain, designed to handle at high speed the huge tonnages anticipated. Ore would be unloaded directly onto the main belt line or diverted to a storage belt system, while at an adjoining dock, northbound coal would be loaded at a claimed rate of eight minutes per vessel. Stock piles supplied by the storage belt system would be located outside Lorain to avoid using high-cost waterfront property. Each storage unit would consist of 90 piles, each pile having the capacity of the largest freighter. Coal for reshipment by water would be stored in a separate area for loading onto ore-ships when emptied.

Among the features of the project would be the establishment of a modern coal-washing plant as an integral part of the system. More than one-third of the bituminous coal produced today is not properly cleaned and graded before leaving the mine. The Riverlake washing plant would enable mines which do not now have cleaning equipment to find better markets and pave the way for increased coal production. This plant would be located at some distance inland, between the Ohio River and Salem Junction, so that all coal traveling the system could be processed if necessary.

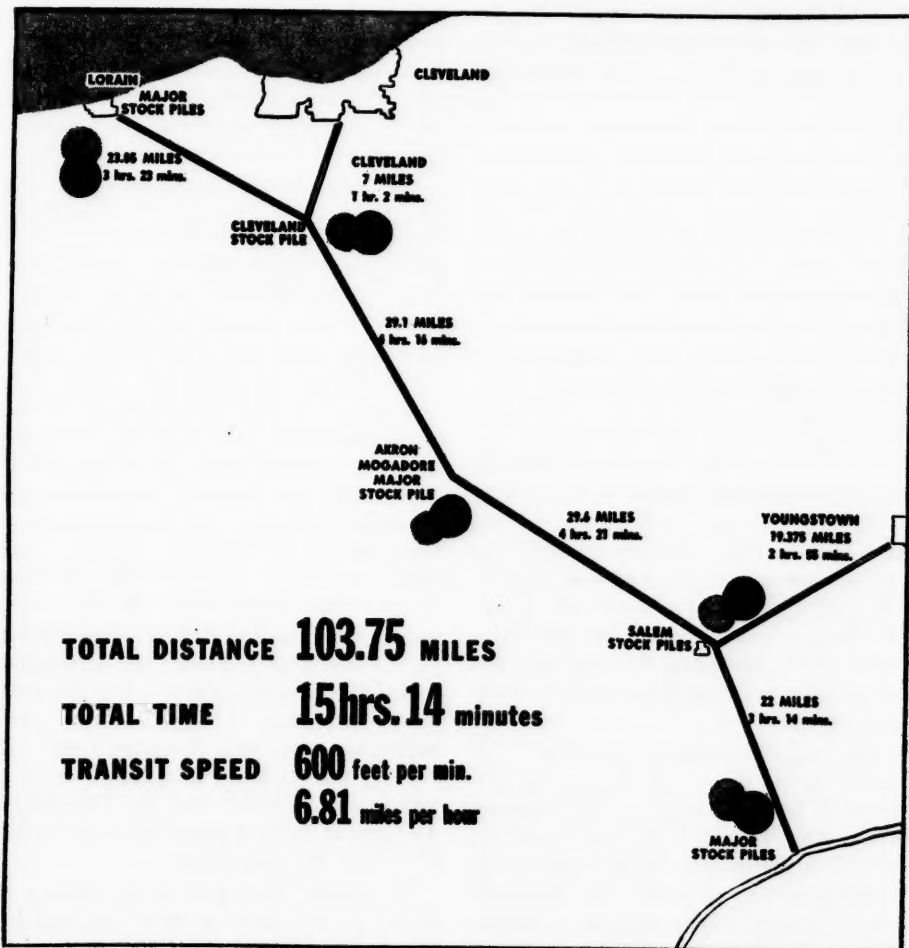
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Modern terminal facilities would be erected at the Ohio River to handle the loading and unloading of barges. In order to transfer the anticipated maximum load of 20,000,000 tons of coal per year, inbound by barge, the terminal would be equipped to unload 66,000 tons of coal per day. Multiple unloading stations would be employed to feed the coal from barges into the storage area or directly onto the main line. After un-

loading coal, barges would move through a clean-up station to the ore-loading dock. Here an anticipated 19,000,000 tons of ore would be loaded per year—15,000,000 for upstream mills, 4,000,000 for those downstream.

One of the most unique features of the installation is that the entire system would be electrically operated and controlled from a single master-switch panel. By merely pushing a button, an engineer



Map above prepared by the Riverlake Belt Conveyor Lines and presented with the original announcement of the project as a tentative route. Shows possible route of the conveyor and its speed between key stock piles, junctions, and terminals along the two-way main line and one-way spurs to Cleveland and Youngstown.

could put all sections of the line into operation, divert cargoes onto spur lines, or in and out of storage piles. An electric-eye warning system would prevent any pile-ups along the line by automatically stopping belts when a jam occurs. Being electrically driven, the system would be noiseless and fumeless.

*Physical Feasibility.* Over \$500,000 on research has been spent by the Engineering Council. Engineering staffs of more than 24 leading companies in the belt-conveyor transportation, electrical, steel, ore and coal-producing fields and in lake vessel operations have contributed to the work of the council. Under the direction of the Stone and Webster Engineering Corporation, every phase of design, construction, and operation of the conveyor has been analyzed by competent engineers.

The feasibility of the belt conveyor has been demonstrated on many of America's difficult engineering jobs, involving the transportation of millions of tons of rock, ore and coal by conveyor belt. Most of these big belt jobs were installed by the Goodyear Tire and Rubber Company whose engineers designed the two-way conveyor belt that is the heart of the Riverlake system. Goodyear built the world's longest single-conveyor belt, a mile-long flight used to haul rock aggregate for the construction of Grand Coulee Dam. Now more than ten years old, this belt is still in service in another high-tonnage operation.

The world's longest conveyor belt system, up to now, was the historic 10-mile belt line employed in the construction of Shasta Dam. This line consisted of 26 belt flights and carried more than 11,000,000 tons of rock. At Anderson Ranch Dam in Idaho, another 2½-mile belt system demonstrated the ability of conveyors to operate over steep mountainous terrain. In coal mine service a

single installation of conveyor belts has carried 40,000,000 tons over a 13-year period with less than 27 hours lost time due to belt trouble. The Riverlake system is a larger-scale extension of a haulage method that has demonstrated its feasibility and efficiency.

*Economic Feasibility.* A single word describes the economic application of a belt conveyor system. That word is "volume." Like most forms of transportation involving large fixed costs, the more volume handled by the belt conveyor up to its capacity, the lower will be the cost per ton handled. Large volumes will be necessary to insure the economic feasibility of this rubber railroad.

Let us consider for a moment the area's potential tonnages. Within the area bounded by Lake Erie and the Ohio River, Pittsburgh in the east, and Lorain, Ohio, in the west, is one of the world's greatest concentrations of blast furnaces, steel mills and other heavy industries. Aptly called the American Ruhr, this region is one of the key bulwarks of our national economy. The steel mills to be served directly by the line in Youngstown, Cleveland, and Lorain, currently can consume 11,000,000 tons of coal annually. Steel plants in Canada, Detroit, and Duluth consume another 7,000,000 tons of coal each year. This all can move northbound on the belt conveyor from the Ohio River. There are additional coal delivery potentials of 1,000,000 tons in the Akron area; 5,000,000 tons of other industrial coal, and domestic coal, including that consumed by home owners, totalling 5,000,000 tons in Cleveland. The grand total of potential coal traffic is 29,000,000 tons a year.

To supply these coal requirements, it would be necessary to move the coal by barge from the main coal-producing fields which now serve this area—Pittsburgh, Connellsville, Fairmont upstream,

and Ohio Number Eight, downstream. More than 24,000,000 tons of coal are carried by barge each year from mines on the Monongahela River. Some 18,000,000 tons of coal move annually along the upper Ohio River between Pittsburgh and Powhatan Plant. These immediate fields, through increased production, could supply the conveyor belt with the minimum coal requirement needed to realize low rates. Also, it is anticipated that favorable rates might bring coal upstream from the more distant Kanawha, Pocahontas, and Kentucky fields.

The advocates of the conveyor belt have established minimum cargo requirements of 30,000,000 tons annually; initially 15,000,000 tons of coal northbound and 15,000,000 tons of ore and stone southbound. It is claimed that minimum tonnages actually could be materially lower with resulting rates still well under the railrates. Such a minimum would have to be assured before the project could be started. From the potentials described, it is concluded that the required minimum could be assured if the lower rates claimed by the conveyor line can be established.

## II. Principal Legal and Economic Issues

### *Is the Conveyor Belt a Common Carrier Entitled to the Power of Eminent Domain?*

The primary issue before the Ohio Legislature in 1951 was the validity of the belt conveyor's claims to common carrier status and the right of eminent domain. In many instances it is difficult to distinguish between a contract carrier and a common carrier. Although there is no express definition of a common carrier in Ohio statutes, court decisions have clarified the concept. "A common carrier is one that undertakes, for hire or reward, to carry or cause to be carried, goods for all persons who may choose to employ

him, from one place to another."<sup>1</sup> Again, "To constitute a common carrier there must be a dedication of property to public use of such character that the product and service available to the public generally and indiscriminately, and . . . the carrier must hold himself ready to serve the public indifferently to the limit of his capacity . . . If a carrier is employed by one or a definite number of persons by a special contract, or for a special undertaking, he is only a private carrier."<sup>2</sup>

The Interstate Commerce Commission has done much to distinguish between types of carriers. In determining the status of a carrier the Commission has said: "The essential consideration is the general character of his business and of his holding out to shippers . . . Does he confine his services to specially selected shippers, or does he, in substance and effect, offer his services, within the limits of his capacity, to shippers generally who desire such transportation as he undertakes to furnish? The number of shippers for whom a carrier performs transportation has a bearing on this matter, as has the character of the contracts under which the service is furnished. Neither is controlling, but both are to be considered, along with other evidentiary facts, in determining the general character of the business and nature of the undertaking."<sup>3</sup> A contract carrier, on the other hand, serves a single patron or a very limited number. The contracts do not cover single shipments but are contracts under which the carrier agrees to transport a series of shipments over a period of time. The service performed is usually of a specialized type adapted to the special needs of the particular shipper or shippers served.

<sup>1</sup> *United States Express Co. v. Backman*, 38 Ohio State 144, (1872).

<sup>2</sup> *Hissam v. Guran*, 112 Ohio State 59, (1925).

<sup>3</sup> *Slagle Contract Carrier Application*, 2 M.C.C. 127, 134 (1937).

The railroads assert that the belt conveyor would be neither a public utility nor, more specifically, a common carrier utility, and that thereby it is ineligible to receive a grant of the power of eminent domain. If willingness to serve all the shipping public indiscriminately is used as a criterion of a common carrier, the belt conveyor, say the railroads, seemingly fails to meet the test. The belt conveyor is not designed to carry all commodities, but instead, is intended to carry coal, ore, and limestone. In fact, belt proponents have cited expected annual traffic figures in terms of tons of coal northbound and tons of ore and stone southbound. The specialized nature of the belt conveyor is pointed up by the admission that there is no anticipation of package freight traffic. The President of the Riverlake Belt Conveyor Lines, Inc., stated in a debate before the City Club of Cleveland, "Package goods is one of those things that belong to the railroads and we don't want to get in it."<sup>4</sup> The few commodities which the belt conveyor desires to carry, when compared with those which it has no interest in carrying, seem to indicate that an indiscriminate offer to serve is not made. The opponents of the belt point out that if this is the case, common carrier status is thereby precluded, for, "the distinctive characteristic of a common carrier is that he undertakes to carry for all people indifferently."<sup>5</sup>

The proponents of the belt contend, however, that the Riverlake will be a common carrier just as are the pipe lines, the power lines and other public utilities. It is generally accepted that the business of a common carrier may be restricted within such limits as he may deem ex-

pedient and he is not bound to accept goods out of the line of his usual business. It is pointed out that the one thing which makes necessary the handling by the railroads of "everything" they are offered by the public is the fact that the railroads have set themselves forth, through tariffs and/or charters, to handle substantially all commodities. Only because the railroads asked for such business originally and because they formalized such requests are they required to handle all commodities today.

Riverlake, under the conveyor bills submitted to the Ohio Legislature, must accept indiscriminately all tonnages, large and small, offered to it of those materials which it sets forth to handle and hence would meet this requirement of a common carrier.

The railroads further point out that the offer to serve made by the belt conveyor is limited not only by the nature of the commodities it appears willing to handle, but also by the limited number of shippers it is intended to serve. A useful criterion here is *ability* to serve. The ability of the belt conveyor to serve all shippers in an area is seriously impaired by the absence of facilities able to provide wayside pickup and delivery. Customers must have access to terminal points. Those located between these points cannot buy service. It seems, then, that the belt conveyor will not be dependent upon a great number of customers shipping a diverse assortment of freight. Instead, traffic is expected to derive from a few large customers, primarily steel companies, whose specialized needs may well be served by the belt conveyor. That these conditions exist and that they militate against common carrier status for the belt conveyor is what the railroads contend. President Stewart of Riverlake suggested the nature of prospective customers when he stated:

<sup>4</sup> *The Rubber Railroad, A Summary of Legislative Hearings*, The Special Transportation Committee, (a private organization) Columbus, Ohio, 1951, p. 8.

<sup>5</sup> *Columbus-Cincinnati Trucking Co. v. Public Utilities Commission of Ohio*, 141 Ohio State 228, (1943).

"We have been questioned as to whether or not we are a common carrier. Because of financing requirements, we must contract for roughly half of our tonnage."<sup>6</sup> Further information on the limited ability to serve of the belt conveyor is furnished by Mr. J. W. Huffman, counsel for the proponents, who testified: "as is well known, the nature of the commodities which will be hauled here—such as iron ore, coal, and limestone—and from the nature of the commodities to be transported, undoubtedly the most of the hauling will have to be done under contract between the belt conveyor line company and the shippers."<sup>7</sup> These indications of a limited ability to serve the public while depending heavily on contractually assured business do not contribute to the claim of the belt conveyor that it is a common carrier. The Supreme Court of Ohio has held that: "the authorities are equally uniform in holding that if a carrier is employed by one or a definite number of persons by a special contract, or for a special undertaking, he is only a private carrier."<sup>8</sup>

However, it has been held that the fact that a person agrees to carry goods for others only upon condition that they sign a contract for such employment, which is therein designated as a private contract, does not divest such business of its public character, so as to prevent such person from becoming a common carrier, if he holds himself out as being ready and willing to carry for all responsible persons who will sign such contract.<sup>9</sup> As the conveyor belt will not be employed by only a definite number of shippers and as the rubber railroad, under the proposed legislative statute, must accept indiscriminately all tonnages, large and small,

offered to it, proponents contend that the contractual character of the conveyor belt does not preclude its classification as a common carrier.

The railroads maintain that the unlikelihood of the belt conveyor's proving common carrier status is increased when it is noted that the legislation it sponsors makes no provision for effective rate regulation. Practically all of the traffic included in the belt conveyor estimates is interstate because it originates in and/or is destined to other states. Even Ohio-mined coal shipped by belt to Ohio points, would be interstate because the Ohio River is not in Ohio. Since no federal law regulates belt rates, it is concluded by the opponents of the belt that there would be no effective rate regulation. This might be interpreted as an indication that little other than contract business is anticipated. Since the conveyor belt proponents have indicated the contractual nature of their proposed customer-carrier relationship and in view of the absence of rate regulation, the railroads again assert that the belt conveyor is not a common carrier because it performs the transportation service for specific customers at prices fixed in each case by definite contract.<sup>10</sup>

By showing that the proposed belt conveyor would not carry all commodities nor serve all customers, the railroads conclude that the proposed belt conveyor is not a common carrier public utility and hence not eligible to acquire the right of eminent domain, for, "to constitute a public utility, the devotion to the public must be of such character that the product and service is available to the public generally and indiscriminately."<sup>11</sup>

It is important and interesting to note that in 1951, in the same year that the

<sup>6</sup> *Facts about the Belt Conveyor*, The Special Transportation Committee, Columbus, Ohio, 1951, p. 10.

<sup>7</sup> *Ibid.*, p. 10.

<sup>8</sup> *Hissam v. Guran*, 112 Ohio State 59, (1925).

<sup>9</sup> *Breuer v. Public Utilities Commission of Ohio*, 118 Ohio State 95, (1928).

<sup>10</sup> *Columbus-Cincinnati Trucking Co. v. Public Utilities Commission of Ohio*, 141 Ohio State 228, (1943).

<sup>11</sup> *The Southern Ohio Power Co. v. Public Utilities Commission of Ohio*, 110 Ohio State 246, (1924).



Ohio Legislature failed to grant common carrier status to the belt conveyor lines, the same legislature did classify businesses transporting coal or its derivatives through pipes or tubing as common carriers.<sup>12</sup> The authors fail to see any distinction in determining common carrier status between transporting coal or its derivatives through pipes or tubing and transporting the same commodity through an enclosed conveyor belt. In view of the above, it appears that the weight of the argument rests with classifying the belt conveyor as a common carrier.

If the rubber railway is not a common carrier, it is doubtful if it could be granted the power of eminent domain. The Supreme Court of Ohio has stated: "It [the power of eminent domain] may be used to appropriate lands for a public highway of any kind; and this whether the road is built and owned by the public, or by a corporation as a public instrumentality: provided it is kept open for public use, as a matter of right; or, according to the nature of the work, the corporation is made a common carrier of goods or passengers."<sup>13</sup> Again, with reference to "public highways": "Such works may be constructed, in whole or in part, by the public, by means of taxation, or through the instrumentality and with the means of private individuals incorporated for the purpose; and, under suitable regulations—according to the nature of the work—obligated to keep them open for general use, or made common carriers of passengers or goods. In either mode, the great end is attained—a public highway, open to the use . . . of the public at large."<sup>14</sup> It is doubtful if the conveyor belt could meet the above

requirements if it were not also classed as a common carrier.

*Will the Belt Conveyor Aid National Defense?* The proponents of the rubber railroad claim that the belt conveyor would mean much to national defense. It would aid in meeting the transportation demands, already one of our serious production bottlenecks, by serving as an added artery of transportation. Our industrial capacity now is a third again as great as it was at the time of Pearl Harbor and has expanded over 2½ times since 1918. What has happened to the railroads in the interim? In 1949 the railroads handled less tonnage than they did in the year 1918. Following the two World Wars the growth of trucking, coastal and inland waterway transportation, pipe lines and power lines has generally fulfilled the increased transportation requirements. While the railroads have progressed in efficiency and in comfort for their customers, they now handle only a little more than one-half of the nation's intercity freight tonnage, belt proponents contend. The railroads cannot be blamed for this situation which results generally from conditions beyond their control. But the fact remains that because of the increased transportation requirements and because of their critical car shortage, the railroads often are not in a position to guarantee that they will be able to move the greatly increased tonnages of finished products to come from the expanded production. River-lake claims, therefore, that all forms of transportation should be utilized to the fullest and additional arteries developed to handle the growing volume of defense production.

The proponents claim that the belt conveyor is a defense necessity as an aid to the protection of steel, power, and other production. The conveyor system could be quickly repaired in case of

<sup>12</sup> House Bill 617; Senate Bill 131, Ninety-ninth Ohio General Assembly, 1951.

<sup>13</sup> *Giesy v. Railroad*, 4 Ohio State 308, (1854).

<sup>14</sup> *Ibid.*, p. 326.

attack in contrast to the much longer time needed to reestablish railroad bridge structures and other vulnerable railroad operating points.

The railroads claim that the belt conveyor would weaken national defense through reducing the flexibility of the present transportation system serving basic war industries. More specifically, the railroads contend that loss of traffic to the conveyor belt would be so great that the present dock set-up and its dispersion along the Lake Erie coast could not be maintained. Ore-laden lake vessels connect with 13 railroad ore docks at 8 Lake Erie ports from Toledo to Buffalo, and 11 private steel company docks at 5 ports, all of which are equipped to unload ore boats. Twelve coal docks are provided at 10 ports to transfer coal from cars to vessels. On the other hand, belt conveyors would establish one port (Lorain) which would handle all the traffic the railroads move via numerous facilities at distantly separated lake ports. Should an emergency arise at one port, or should weather delays cause lake vessels to arrive "bunched," quick shifts to other ports or rail lines can be arranged. This broad choice of alternatives encourages optimum use of existing facilities and provides a flexibility that dependence on a single port could not begin to assure.

In answer to this claim of the railroads, the proponents of the belt conveyor point out that Riverlake will be a supplemental artery and not one of replacement of an existing artery. It is claimed that the value of Riverlake tonnage would amount to merely 2.48% of the 1948 gross revenues of the principal Ohio roads. Of the Riverlake capacity a maximum of only 7,000,000 tons of coal annually could be consigned to the ports for lake shipment. The remainder, approximately 15,000,000 tons, would be

consumed at inland points served by Riverlake. Of the 1951 tonnage of approximately 60,000,000 tons of coal handled by rail delivery to the Lake Erie ports, Riverlake, at best, could have moved only 10% to 12% of this tonnage. This indicates that the rubber railroad would only supplement present critical shortages of transportation facilities.

*Would the Economy Benefit or Suffer?*<sup>15</sup> Currently the areas to be served by the Riverlake Belt Conveyor Lines consume 62,000,000 tons of coal and ore per year. Operating at its maximum capacity of 52,000,000 tons per annum, the Riverlake proponents claim to be able to cut transportation costs \$45,380,000 yearly under existing rates. With a minimum of 30,000,000 tons the saving would be \$20,000,000 per year.

The advocates of the conveyor belt offer to undercut railroad coal rates from river terminals to Cleveland-Akron-Lorain by \$1.06 a ton, on 15 million tons annually, and boost that to \$1.50 on the maximum capacity of 20 million tons. Youngstown would be served over a nineteen-mile spur belt. There the promised savings are 50 cents and 81 cents a ton. For carrying iron ore, Riverlake offers to better the railroad rate from Lorain to Youngstown by 47 cents a ton on a base of 15 million tons, 60 cents on the maximum tonnage of 32 million. Steel mills upstream would benefit proportionately since the belt would load into barges, an inexpensive carrier. For Midland and Monessen mills, upstream, Riverlake promises to reduce costs 53 to 66 cents a ton on Lake Erie ore, for downstream Weirton and Wheeling, 43 to 56 cents and 55 to 68 cents.

<sup>15</sup> The statistical data set forth by the proponents of the belt line and used in this section were drawn from a published address titled: *An Address by H. B. Stewart, Jr.*, (Akron, Ohio: The Riverlake Belt Conveyor Lines, Inc., 1949). The data set forth by the opponents were drawn from the publications indicated in footnotes 4 and 6, *supra*.

No very sharp pencil is needed to figure the dollars saved if Riverlake could make good on its promises. Potential savings to Youngstown on coal total over \$3 million a year, on iron ore almost twice as much. The upstream mills would stand to save \$9,900,000, the downstream ones, \$2,249,000. Cleveland mills might pay \$6 million less for their coal, the mills around Lorain, \$4,500,000 less. Such figures seem to promise the rejuvenation of Ohio's entire steel industry. Although the state stands second in steel production with 20 percent of the national output, Ohio mills, especially those in the landlocked Youngstown area, have been hard pressed to compete with river-front and lake-front plants elsewhere. If these savings were realized, it would improve Ohio's economy by keeping existing industry there and attracting new plants because of cheaper transportation. It is further claimed by the proponents of the rubber railway that it would cut the fuel bills of coal consumers in the area served. It would save dollars for every buyer of steel products, from roller skates and automobiles to farm equipment, tanks and battleships.

Further, proponents claim that the belt would be a boon to Ohio's coal industry because lower coal transporting costs would expand coal's market. It is true that transportation rates may determine the extent to which the resources of a particular area are utilized, since freight rates may determine the extent to which profitable markets can be reached. However, it does not necessarily follow that the Riverlake belt would be a boon to Ohio's coal industry.

The railroads contend that the Ohio coal industry and its workers would be seriously damaged by the establishment of the belt. In 1938 more than 38 million tons of coal were mined; this was valued at the market at about \$125 million. In

that year employment averaged 20,000 while payrolls totaled \$65,590,000. Although most of the coal mined in neighboring states is of a higher quality, Ohio mines have developed markets because of geographical advantages which are reflected in freight rates lower than those paid by producers of better coal which are not so advantageously located. The proposed belt would receive Pennsylvania and West Virginia coal at East Liverpool for shipment to what is now the primary market area for Ohio coal. It is feared that the only advantage Ohio producers now enjoy, favorable rates, would be eliminated where, currently, their advantage often amounts to a dollar a ton or more. It is likely that no Ohio coal would use the belt, for only one mine in the state, the Powhatan Mine (North American Coal Corporation), loads coal on the Ohio River. Even this producer opposes the belt because of the threat to existing rate structures by the belt whose rates would be regulated by no public authority. Thus, it is claimed that the economic stability of another important segment of Ohio's economy is threatened by the belt.

What the correct conclusion is can be determined only by a thorough study of the coal industries of Ohio, West Virginia, Pennsylvania, and possibly Kentucky. There is no doubt, however, that the belt conveyor, if it can make good on its promises, would be a boon to the coal industry in some of these states.

It is important to note further that transportation charges have important effects upon the location of industry. It must also be recognized that the importance of transportation charges will vary in different industries. If transportation costs are a large factor in the cost of production, and large relative to the value of the commodities produced, they may be the controlling factor in the location of

the industry. If transport costs are but a small part of the cost of production, and small relative to the value of the commodities produced, they may exercise practically no influence in the selection of locations. Apart from the effect of the reduced transportation charges on the steel and coal industries, there may be a large effect on the location of manufacturing industries with the concomitant problems of population shifts. Such changes in the location of industry may have beneficial or deleterious effects on the economy as a whole dependent upon the shifts that would occur. It is difficult if not impossible to conclude just what that effect would be.

The railroads further claim that while few economic groups would benefit, many would suffer from the conveyor belt. These opponents of the rubber railway claim that there has been no evidence shown that would indicate a public demand for additional transportation service. Those who testified at the legislative hearings have not represented broad shipper interests or the consuming public but only those parties which stand to gain directly. The rubber company which would supply the belt itself has the prospect of a \$38,000,000 order initially, plus replacement every four years. The rubber workers, who also have an interest in the project, are of like mind. The building trades unions have given willing support to the plan. Power companies feel that they would gain through reduced coal costs and from new sales of power to the belt conveyor. Steel companies, especially in the Youngstown area, have an interest, too, because they would be served directly by the belt. Notably absent in the testimony for the project are those groups which do not have the promise of direct gain and those complaining of inadequate service.

While belt spokesmen have predicted savings ranging from twenty to sixty-five millions per year, the railroads claim that their estimated losses to the belt would be \$118,764,000, or 18% of gross revenues and 71% of their bituminous coal and iron ore earnings in Ohio.<sup>16</sup> This potential loss would weaken the railroads and endanger common carrier service for, with decreased tonnage, rates would be forced upward on the remaining traffic while putting marginal lines out of business. The prospect is one of less service to the shipping public at higher rates.

The Riverlake people answer this claim by stating that the effect of the Riverlake tonnage would amount to merely 2.48% of the 1948 gross revenues of the principal Ohio roads. Further, they contend that railroad coal and ore traffic is a losing proposition. Consequently, the inference drawn is that the railroads have no logical basis for resenting increased competition in the transportation of these commodities. The premise and the conclusion bear further analysis.

The source material, cited by Riverlake in substantiation of this claim, is an information statement published by the Cost Section of the Bureau of Accounts and Cost Finding of the Interstate Commerce Commission.<sup>17</sup> In attempting to prove that the railroads lose money on coal and ore, Riverlake cites I.C.C. statistics which relate carload freight revenues to fully distributed cost by commodity in Official Territory. Accurately enough, Riverlake shows that each carload of bituminous coal (in 1948) provided only 83 cents in revenue for every one dollar of fully distributed cost in-

<sup>16</sup> *Op. cit.*, *The Rubber Railroad* (Testimony of Roy S. Kern, Chairman, Coal, Coke and Iron Ore Committee of the Central Territory Railroads) p. 10.

<sup>17</sup> *Information Statement No. 4-50*, Interstate Commerce Commission, Bureau of Accounts and Cost Finding, Cost Finding Section, Washington, D. C., September 1950.



curred. Riverlake concluded that the railroads handled coal at a loss of 17 cents on each dollar of cost. For iron ore, Riverlake found that the railroads lost 23 cents on the dollar. Their conclusion, on the basis of the above, was inevitable.

The theory of railroad rates, currently prevailing, holds that some commodities need not bear all the costs allocable to their transportation, since bulky, low-value goods could not afford to move if apportioned their fully distributed costs. However, if such commodities are able to pay their out-of-pocket costs and make some contribution to constant overhead costs, there is economic reason to accept this business, for railroad costs are largely constant and any traffic which utilizes otherwise idle equipment, while returning something toward overhead, is desirable traffic. Professor Locklin writes that "this practice is called differential charging, or discrimination. The terms refer to differences in rates not justified by differences in cost of service. The practice of differential charging results in a situation which is very confusing to persons unacquainted with railway economics, for the railroad is found to be carrying some kinds of traffic at less than the full cost of service, yet is making a profit out of it."<sup>18</sup>

In light of the above it is evident that Riverlake should have consulted the relationship between carload freight revenue and out-of-pocket cost—not fully-distributed cost. If Riverlake's source, Statement No. 4-50 of September 1950, is consulted with regard to out-of-pocket cost, it is found that bituminous coal contributed \$1.48 for each dollar of out-of-pocket cost. Obviously, this coal traffic is profitable; for it meets out-of-pocket costs and makes a contribution

toward overhead, too. The situation with regard to iron ore is much the same. For every dollar of out-of-pocket cost, \$1.56 was paid in by ore traffic. On the basis of the above, it would seem that the Riverlake claim that railroad ore and coal traffic is profitless is baseless.

On this same topic of revenue from various types of traffic, Riverlake holds that, in the long run, the railroads will benefit by the establishment of the conveyor. This view is based on the assumption that the conveyor would provide lower cost transportation for the bulk materials used in the industries served. Were this the case, the lower costs would attract new business and tend to keep production levels higher in the established firms than might be the case in the absence of the conveyor. The result of this, reason the belt proponents, would be an increased quantity of finished and partly-finished goods traffic. The conveyor statistics show, for example, that pig iron pays \$1.26 for each dollar in fully distributed cost incurred. Steel billets and ingots bring \$1.37, while manufactured iron and steel bring in revenues of \$1.67 per dollar of expense. Proponents claim that a long-run increase in such traffic is definitely in prospect.

Further, the railroads claim that railway labor would stand to lose heavily since 48.7 cents of every dollar of rail gross revenue goes to employees. On the basis of the estimated revenue loss, the wage loss would exceed \$57 million or about 15,000 unemployed. By contrast the belt has an estimated payroll of 1500 employees. The losses of the railroads and their employees would affect the communities involved through tax and purchasing power reductions. The Riverlake people contend that this is exaggerated because the railroads should not experience a drop in gross revenue

<sup>18</sup> D. Philip Locklin, *Economics of Transportation* (Chicago: Richard D. Irwin, Inc., 1947), p. 139.



due to the increase in the carriage of higher rated commodities.

*Will the Belt Increase or Decrease Tax Revenue?* The proponents of the rubber railroad claim that there would be no tax dollars lost to the state or any of its counties because of Riverlake. In fact, the existence and operation of the Riverlake conveyor system would pay into the counties through which it would pass and to the State a total of over \$3,000,000. These would be added tax dollars.

The railroads claim that the belt conveyor would cause a tax loss of serious proportions. The taxes involved here are a state gross receipts tax of 4 percent on intrastate business and the local ad valorem levy on railroad property. While the belt conveyor would be located wholly within Ohio, the traffic it handles would be almost entirely interstate and hence not subject to the Ohio 4 percent excise. The belt would receive no intrastate tonnage so long as its coal is received from barges at East Liverpool and its ore and stone from boats at Lorain.

The railroads claim that the establishment of the belt would cause an 18 percent loss in gross revenues earned in Ohio. In 1950 the railroads paid a total excise tax of \$2,899,778. A loss of 18 percent would reduce state revenues by \$521,960.

In 1948 the railroads paid a total ad valorem tax to Ohio political subdivisions amounting to \$14,093,092. Of this amount, \$10,222,650 was paid to those subdivisions in 42 counties providing the taxable situs of property serving prospective belt traffic. Reduced railroad assessments caused by loss of coal, ore, and stone tonnage have been estimated at \$1,794,012, a decrease of 17.8 percent. The railroads contend that this tax loss could not be made up fully by the belt. The nature of this threat to public

revenue is so serious that 117 city and village councils have passed resolutions condemning the belt, along with the commissioners of nine counties and the members of 54 civic organizations in the area affected. This argument presupposes a drop in railroad traffic, and ignores the increase in traffic of the higher-rated commodities which proponents claim the belt should produce.

### III. Conclusions

The weight of the argument seems to rest in favor of granting common carrier status to the belt conveyor. The point on which the issue turns is the fact that common carriers may designate the type of traffic to which the general offer to serve is made. Further, the fact that the Ohio Legislature classified as common carriers those businesses transporting coal or its derivatives through pipes or tubing, supports this conclusion. By serving as a supplemental artery the conveyor belt could contribute to defense efforts although the possibility exists that the installation of the conveyor belt, if successful, would cause the railroads to allow facilities to deteriorate. In the long run, then, there might be little net increase in facilities. Should Riverlake make a favorable showing in fulfilling its promises of lower transportation rates, the economy could benefit by lower costs and possible increased production. It seems doubtful that Ohio would lose tax revenue from the construction of the belt, although the likelihood exists that local hardships in some cases would occur while additional revenues were collected by others. Finally, the opportunity would be presented to acid-test long distance conveyor belts which might represent an important addition to our national transportation system.

## Reports and Comments

### Some Aspects of the Adjustment of Iowa Agriculture to the Soil

THE soil is one of the important conditions affecting human adjustment to environment but studies of man's response to the soil have been largely confined to farm practice and to areas small enough to be covered by field studies. Studies of response over areas large enough to be the basis for economic generalization have been difficult because other conditions, climate, culture, market demand, transport facilities, etc., vary with the soil in such a way as to make it difficult to the verge of impossibility to isolate those responses that are due to soil from those that are adjustments to other conditions.

The state of Iowa, however, offers a large area within which conditions other than soil are so nearly uniform, at the present time, as to warrant the belief that differences in farm practice which can be shown to be associated with difference in soil are in fact reactions to these soil differences. At the present time Iowa is the only state which lies wholly within the "Corn Belt" type-of-farming area,<sup>1</sup> a condition which may well be ascribed to the influence of climate, for the state is bracketed between the optimal July isotherms for corn,<sup>2</sup> while its rainfall range, which rises from 26 inches in the northwest to 36 inches in the southeast, is nicely adjusted to the parallel range of temperature and growing season length so as to provide satisfactory conditions for corn culture for the entire state.<sup>3</sup>

<sup>1</sup> United States Department of Agriculture, Bureau of Agricultural Economics, *Generalized Types of Farming in the United States* (Mimeograph) Washington, July 1946.

<sup>2</sup> Henry Agard Wallace and Elmo N. Bressman, *Corn and Corn-Growing* (Des Moines: Wallace Publishing Company, 1923), pp. 11-12.

<sup>3</sup> Lauren K. Soth, *Agricultural Economic Facts Basebook of Iowa*, Iowa Agr. Expt. Sta. Special Report No. 1 (Ames: April 1936), pp. 137, 138.

<sup>4</sup> Fred A. Shannon, *The Farmer's Last Frontier* (New York: Farrar and Rinehart, 1945), p. 163.

<sup>5</sup> *Tenth Census of the United States: 1880*, vol. 3, pp. 187-188.

<sup>6</sup> M. L. Bowman and B. W. Crossley, *Corn*. 2nd ed. (Waterloo, Iowa: Waterloo Publishing Company, 1911) pp. 424-445.

<sup>7</sup> *Sixteenth Census of the United States: Drainage of Agricultural Lands*, pp. 38-40.

<sup>8</sup> *United States Census of Agriculture, 1945*, Vol. I, Part 9 (Iowa), p. 55; Part 12 (Nebraska), p. 53.

In the beginning corn cultivation was not so general as now. The state stood second in the nation in 1869 in wheat production;<sup>4</sup> although it had dropped to sixth in rank ten years later there were still fourteen counties in the state which put more land into wheat than corn.<sup>5</sup> But the introduction about 1879 of productive strains of early-maturing corn<sup>6</sup> and subsequent drainage of the northern drift lands<sup>7</sup> made concentration on corn more profitable. So sharp has been the decline of favor for wheat that in 1944 only 112,500 acres of wheat were harvested in the entire state, an acreage less than that in several single counties of Nebraska.<sup>8</sup>

The state is gridironed by an elaborate networks of railroads and highways which bring every productive acre within easy reach of primary markets, while there are no very large cities to provide unusual market demands such as those evident in the Chicago "milk shed." The farm population has been seated on the land for several generations and has for most of that time been imbued with the "corn belt" cultural influences, which it has itself done so much to develop and disseminate. Climate, transport, market influence, and culture alike create the conditions for uniformity of response. Intrastate deviations in practice would seem, on the principle of exclusion, to be attributable to the soil. Let us look to it.

Based upon the geological history of the state, soil scientists distinguish five major soil provinces, the Iowa Drift, Mississippi Loess, Missouri Loess, Southern Iowa Loess, and Wisconsin Drift. Each of these has its own distinctive soil types, whose extent is now pretty well known since the United States Soil Survey has mapped 88 of the state's 99 counties.<sup>9</sup> The first step in this study was to

<sup>9</sup> The reports of the surveys completed up to 1936 were compiled and published by P. E. Brown, *Soils of Iowa*, Ia. Agr. Expt. Sta., Special Report No. 3 (Ames: November 1936). Two additional counties have been mapped since that date and reports published, as follows: "Soil Survey of Jackson County," *Series 1936*, No. 6 (March 1941); "Soil Survey of Story County," *Series 1936*, No. 9 (November 1941).

## MAP -A-



— Soil Province  
 -- Type of Farming Area

class the counties into the several provinces, on the basis of this information, supplemented by personal observation and mapped location. The results of this classification, for the 90 counties that could be classified, appear in Table I.

TABLE I—COUNTIES CLASSIFIED BY MAJOR SOIL PROVINCES<sup>10</sup>

Soil Province	Number of Counties	Area, per cent of State total	Farm Population, 1945, per cent of state total
Iowa Drift.....	14	13.6	13.5
Mississippi Loess.....	24	25.4	25.7
Missouri Loess.....	18	20	19.4
Southern Iowa Loess.....	17	14.9	14
Wisconsin Drift.....	17	16.6	16.8

<sup>10</sup> Area computed from *Census of Iowa for the Year 1925* (Des Moines: State of Iowa, 1926); farm population percentages computed from *U. S. Census of Agriculture, 1945*, Vol. I, Part 9.

Although the entire state lies within one type of farming area, five sub-regions or state type-of-farming areas are recognized within Iowa. Adaptation of farming practice to soil appears at once in the close correspondence of these five areas to the five soil provinces, as shown in the map.<sup>11</sup> If we turn from the mapped type of farming areas to the classification by counties, the coincidence is not so sharply defined, but it is still close. Every Missouri Loess county is "typical," i.e., lies in the Western Meat type-of-farming area, of the Wisconsin Drift counties only two, of the contiguous Iowa Drift counties only one, fail to conform to Cash Grain and Northeast Dairy types, respectively. There are greater deviations on the part of the Mississippi Loess and Southern Iowa Loess counties, but taken all together 68 of the 90

<sup>11</sup> Soil province boundaries on the map are from Brown, *Soils of Iowa*, Fig. 3, p. 10; type-of-farming area boundaries from Walter W. Wilcox and Norman V. Strand, *Differences in Iowa Farms* . . . , Iowa Agr. Expt. Sta. and Iowa State College Research Bul. 260 (Ames, 1939), p. 4.

counties that could be classified as to soil are "typical" as to farming area classification.

Turning to the details of adjustment, the most obvious element is afforded by differences in corn acreages. More land is devoted to forage crops, but corn is the greater producer of value and the capacity of land to endure intensive cropping to corn is the best single criterion for the determination of land value.<sup>12</sup> For many years from one-quarter to one-third of all land in farms in the state has been put into corn, but there are decided deviations among the several soil provinces. These appear in Table II, below. Index figure, "corn intensities," is the percentage of land in farms which was planted to corn and harvested. In 1944 this figure for the state was 31.9%. A glance at the table will show that the Missouri Loess and Wisconsin Drift provinces are wholly above the state mean, that the Southern Iowa Loess lies wholly below, and that the other two provinces are intermediate.

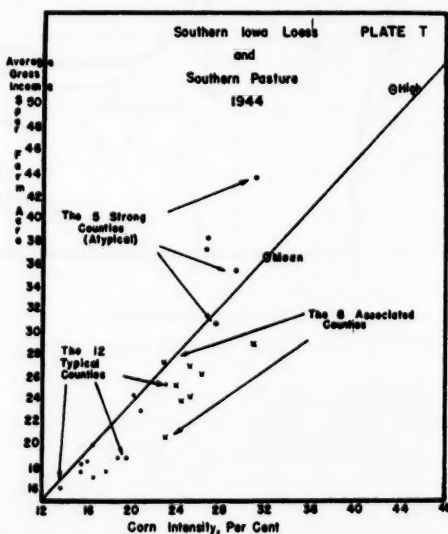
TABLE II—CORN INTENSITIES BY SOIL PROVINCES, 1944<sup>13</sup>

Soil Province	Low County	High County	Median County
Iowa Drift.....	23.5	42.9	30.9
Mississippi Loess.....	15.5	35.9	28
Missouri Loess.....	32.5	43.4	39.5
Southern Iowa Loess.....	13.7	31	19.5
Wisconsin Drift.....	35.2	41.2	38.8

Pasture intensity, as might well be expected, shows the other side of the pattern. All the Missouri Loess and Wisconsin Drift counties had more land in corn than in pasture, in four cases as much as three times more. At the same time all the Southern Iowa Loess counties had more land in pasture than in corn, in six cases as much as three times more. Half of the Iowa Drift counties had more pasture than corn as did two-thirds of the Mississippi Loess counties.

Pasture, however, for the Iowa farmer, is a less productive use of land than corn. Were he an "economic man" concerned only with short-run maximization of income, he would grow corn in even greater concentrations than the present. That the farmers as a

whole go easy on the land, even at heavy cost to themselves in the loss of potential short-run income, is well-indicated in Plate T, below. Here corn intensity and average gross income per farm acre for the crop year 1944 have been plotted for Southern Iowa Loess and Southern Pasture counties. Three groups of counties appear upon the plate: "typical" counties—Southern Iowa Loess by soil class and Southern Pasture by farming type—, "atypical"—Southern Iowa Loess by soil class and Eastern Meat by farming type—, and "associated"—Southern Pasture by farming type but not Southern Iowa Loess by soil class. In this case five Mississippi Loess counties and three unclassified counties



make up the "associated" group. The state mean and the extreme high position, occupied by a Missouri Loess county, are also shown. The low county for the state is also the low county for the province.

That the Southern Iowa Loess province has the poorest soils in the state is indicated by this plate and also by the forty-year average of corn yields by counties, 1900-1939. This shows the Southern Iowa Loess counties lowest in yield, with the average yields for the "typical" counties ranging between 76 and 92 per cent of the state mean. The "five strong counties" of the province, on the other hand, are far ahead in yields and do not

<sup>12</sup> Henry A. Wallace, "Comparative Farm-Land Values in Iowa," *The Journal of Land & Public Utility Economics*, October 1926, pp. 390-391.

<sup>13</sup> Computed from *U. S. Census of Agriculture, 1945*, Vol. I, Part 9, County Tables 1 and 2.

suffer by comparison with the counties in other provinces.<sup>14</sup>

A measure of differences in fertility by counties was worked out in the form of a fertility index. The Soil Survey reports assign a value rating to the soils mapped, on a scale which ranges from a value of one for highest productivity to a value of ten for lowest. Using the value ratings for general farming purposes, an index for each county was constructed by multiplying the number of acres in each soil series mapped for the county by the value rating for that series. The products were then summed and divided by the acreage of the county. An estimated value was assigned to the few, and scattered, unmapped counties. The results appear in Table III, below.

TABLE III—FERTILITY INDICES BY SOIL PROVINCES<sup>14</sup>

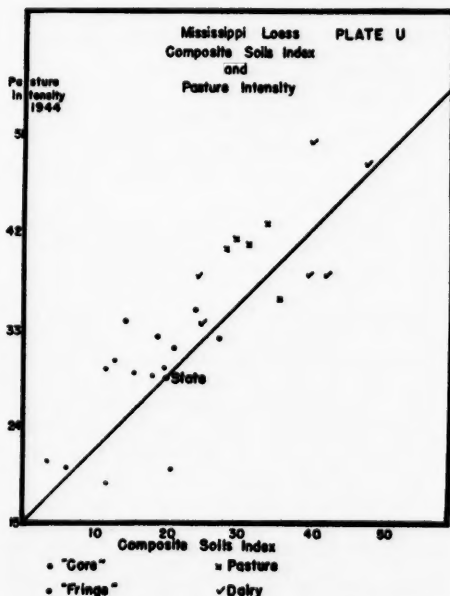
Soil Province	Low	High	Median
THE STATE.....	6.44	1.34	3.03 (mean)
Iowa Drift.....	3.54	1.49	3.03
Mississippi Loess.....	5.05	1.86	3.45
Missouri Loess.....	3.83	1.45	1.93
Southern Iowa Loess.....	6.44	3.24	4.39
Wisconsin Drift.....	2.93	1.34	1.98

A scatter diagram plotting the fertility index by counties with percentages of farm land in crops for 1944 gave a close correlation, but it seemed evident that a better measure than one of fertility alone was needed.

Contrary to the opinion of many casual visitors, Iowa has much rugged terrain, and the state's original endowment of rich soil has been cruelly ravaged in many areas by erosion. To measure farm adjustment today, values for slope and erosion were necessary. Information from which indices for these two features could be prepared was found in a 1936 study of soil erosion published by the Agricultural Experiment Station and the State College, at Ames.<sup>16</sup> Table II of this

Study reported the acreages of land in each county in ten different slope classes. In preparing the index a weight was assigned to each class which was approximately that of the degree of slope, the acreage of land in that slope class was multiplied by the weighting number, the products summed and divided by the total acreage of the county. The state mean by this method was 5.8, which would correspond to a uniform slope of a little over five percent.

An erosion index was prepared in the same manner from information in Table IV, with weights that were approximately the same as those for the slope classes. The state mean for the erosion index, prepared in this fashion, was 6.85. (No significance should be attached to the difference between slope and erosion indices.) The next step was that of averaging the slope and erosion indices. The fertility index was then multiplied by this quotient. The result, which we call hereafter the composite soils index, provides a measure which not only recognizes fertility and slope but also makes allowance for the possibly destructive effects of past farm operations.



The index is so constructed that a high score upon it indicates unsuitability for intensive general farming. A scatter diagram (Plate U) plotting the composite soils index

<sup>14</sup> Figures for 1900 to 1929 from *Iowa Yearbook of Agriculture*, 1934, pp. 455-463; for 1930 to 1939 from *ibid.*, 1939, pp. 524-526.

<sup>15</sup> Cf., n. 9. When this study was begun estimated values were recorded for all unmapped counties. Publication of the soil surveys for Jackson and Story counties has made it possible to check the accuracy of the estimates. The calculated index for Jackson county is identical with the estimate; the estimate for Story county is in error by thirteen per cent.

<sup>16</sup> R. H. Walker and P. E. Brown, *Soil Erosion in Iowa*, Iowa Agr. Expt. Sta. Special Report No. 2 (Ames: April 1936), pp. 12-13, 16-17.



against pasture intensities for 1944 in the Mississippi Loess soil province shows a marked conformity by farmers to soil differences and at the same time discloses in sharp outline the subdivisions of the Mississippi Loess province.

As a look at the map will show, this is a sprawling L-shaped tract of which the northern arm, along the Mississippi River, is included in the Northeast Dairy type-of-farming area and the western arm forms a part of the Southern pasture area. Only thirteen of twenty-four counties are "typical" in their type-of-farming association. Of these counties, eight (the "core") had more corn than pasture in 1944; the remaining five (the "fringe") had more pasture than corn although included in the Eastern Meat type-of-farming area. The four sub-groups stand out clearly in the diagram.

A detailed study of the soil series in each county will show the nature of the soil influence. Taking only the counties of the province which have been mapped by the Soil Survey, the "core" counties average fifty per cent Tama and Muscatine soils, the most productive soils associated with the Mississippi Loess. In addition they have 18% of their area in Carrington Silt Loam, the most productive of the Iowa Drift soils. On the other hand, the "core" counties have only 10% of their areas occupied by Clinton Silt Loam, a Mississippi Loess soil which typically is spread over a rugged terrain and which is rated by the Soil Survey as better for pasture than corn.

By contrast, the "fringe" counties have only 35% of their soils in the Tama, Muscatine, and Carrington series, with twenty-three in the Clinton. The atypical northern counties, Northeast Dairy in type-of-farming, have no Muscatine soils at all, only 20% Tama and Carrington soils, but have 73% in soils that are rated better for pasture than corn. This group includes 58% Clinton Silt Loam, 3% rough stony land, and 12% Fayette Silt Loam, a Mississippi Loess soil series found only in this sub-province.

The western outliers, on the other hand, appear to differ from the typical counties chiefly in degree of slope. They have as much of the rich Tama, Muscatine, and Carrington soils as have the "fringe" counties with much less of the Clinton soil, but they have considerable acreages of old Kansan till soils, exposed by erosion of the later-deposited drift and loessial top-soils. These

counties to the west have suffered much the heaviest erosion damage for the province, showing an erosion index (arithmetic mean of the county averages) for the sub-province of 10.1 as compared with the state mean of 6.85 and the "core" mean of 5.6. Slope as a control over intensity of farming practice is shown in Table IV. Median values for corn and pasture intensities are shown for the four sub-provinces and for the "Strong" counties of the Southern Iowa Loess, which are associated in the Eastern Meat type-of-farming area. Linn County is an Iowa Drift county which is Eastern Meat in type-of-farming.

TABLE IV—RELATION OF SLOPE TO INTENSITY OF USE, 1944

Subprovince	Number of Counties	Slope Index	Corn Intensity	Pasture Intensity
		Mean	Median	Median
"Core" counties..	8	5.6	32.5	25.4
"Fringe" counties.	5	6.5	28.7	32.4
Dairy outliers....	6	8.7	20.1	41.3
Pasture outliers...	5	7.2	24.2	40
Linn County.....	1	6.2	31.3	28.3
S.I.L. "Strong" counties.....	5	5.6	28.2	33.1

With this table enough evidence has been presented to show that Iowa farmers have adapted their farming practice in large measure to the soil. A number of anomalies remain, of which the most prominent is probably the remarkably uniform density of farm population which is shown in Table I. A consequence of this uniformity, when coupled with the variations within the state in soil fertility and farming intensity, appears in the great differences in management returns per farm<sup>17</sup> and in the differences in average land prices.<sup>18</sup> Compensatory adjustments within the last decade appear, among other places, in inter-provincial differences in size of farm. Detailed studies of these changes, which there is not room here to reproduce, show the highest stability

<sup>17</sup> J. C. Galloway, "1929 Farm Business Analysis, 650 Iowa Farms," *Iowa Yearbook of Agriculture*, 1929, pp. 38-43; Lawrence Witt and Roger Toussaint, "Less than a Hired Man's Wage," *Iowa Farm Economist*, July 1941, pp. 8-10.

<sup>18</sup> Lester Blum and W. G. Murray, "Rise in Iowa Land Prices Slows up," *Iowa Farm Economist*, January 1945, p. 15; W. G. Murray, "Land Boom Danger Signals," *Iowa Farm Science*, January 1949, p. 9.

in farm size in the Iowa Drift dairying counties and in the "core" counties of the Mississippi Loess province. The greatest increases in size of farm appear in the Southern Iowa Loess province and in the heavily eroded Missouri Loess counties.

The aspects of the present adjustment which we have here indicated can be brought together as part of a conjectural formula for the history of the state. Iowa was settled at the moment of transition from subsistence farming under woodland or semi-woodland conditions to commercial farming. Farm size and farm practice appropriate to the earlier conditions became well established in the southern and southeastern counties. The shift to commercial agriculture, improvement

in the techniques of corn production, and drainage led to a revaluation of Iowa soils<sup>19</sup> and a progressive shift in the area of most intensive tillage from southeast to north central. The dairying province acquired an early formulation which is still apparently satisfying<sup>20</sup> and with the cash grain area of the Wisconsin Drift now constitutes the more stable area of adjustment to the soil. Elsewhere a slow but persistent shift is evident in the adaptation of farm practice to the soil, a shift whose term and limits can not be foreseen even within the present cultural conditions.

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<sup>19</sup> Cf., Leslie Hewers, "Some Features of Early Woodland and Prairie Settlement in a Central Iowa County," *Annals of the Association of American Geographers*, March 1950, pp. 56-57.

<sup>20</sup> R. K. Buck, J. A. Hopkins, and C. C. Malone, *Dairy and Hog Farming in Northeastern Iowa*, Iowa Agr. Expt. Sta. and Iowa State College Research Bul. 275 (Ames: September, 1940), p. 685.

## Some Aspects of the Crop-Share Lease

### *Output and Profitability*

CROP-SHARE leasing of farmland is an important characteristic of mid-west agriculture. Because of the quantity of resources and the number of operators affected, this form of tenure deserves the careful attention of agricultural economists.

The economic consequences of crop-share leasing have intrigued economists for as long as the profession has existed. In an earlier generation, Alfred Marshall devoted attention to the effects of share leasing on the cost structure of the firm, and hence on decision-making and output.<sup>1</sup> In recent years Rainer Schickele and Earl Heady have demonstrated the economists' continuing interest in the problem.<sup>2</sup> Although the model here used is slightly different from their models, the principle may be illustrated in Figure I. Let MC be the marginal cost curve for the firm. This marginal cost will include all variable costs except the share of the crop which must be paid as rent. MR is the marginal revenue curve for the entire crop produced. This would be the marginal

revenue curve for an owner-operator or a tenant with a cash-leasing arrangement. MR' is the effective marginal revenue curve for the tenant who must give one-third his crop as rent. His marginal revenue is equal to his marginal cost at point H with ON being the resulting output. An entrepreneur who received the entire crop would equate marginal cost and marginal revenue at point I with an output of OP. With an output of ON the firm has a profit of ABEF. An output of OP will give a profit to the firm of ACJI which is obviously greater.

The above has been demonstrated by the other investigators previously mentioned. It is believed, however, that there are some additional extensions that can be made on the basis of this model. It has been pointed out that the restriction of output referred to would not have occurred with a cash lease or with an owner-operator. However, it is believed that the sharing of certain variable cost might be another method of overcoming the situation.<sup>3</sup> The tenant will produce ON in his own self-interest. If at this point the landlord will begin to share in the variable costs in the same way he shares in the product,

<sup>1</sup> Alfred Marshall, *Principles of Economics*, Book VI, (London: Macmillan and Company, 1947).

<sup>2</sup> Rainer Schickele, "Effects of Tenure Systems on Agricultural Efficiency," *Journal of Farm Economics*, February 1941; and Earl O. Heady, "Economics of Farm Leasing Systems," *Journal of Farm Economics*, August 1947.

<sup>3</sup> It is assumed that this is a desirable goal both for the firm and for society. The firm may realize a greater profit by producing at OP and the productivity of resources will be more nearly in line with the dictates of price ratios which presumably express the desires of consumers.

the effective marginal cost becomes  $MC'$ . This will intersect  $MR'$  at point K with an output of OP.

This is not unrealistic; for the tenant, in his own interest, will plant the crop and husband it in a certain way. He will tend to perform those practices which are fairly well standardized and those that must be performed in order to grow a crop at all. This will move him into the area of output ON.

There are certain practices, however, the returns from which can be fairly well esti-

mated and which are not essential to the growing of the crop. Examples of such practices are fertilizer application and spraying for weeds. If the landowner were to share in the cost of these practices in the same way he shares in the added product from them, this would have the effect of changing the tenant's marginal cost curve to  $MC'$  and increasing output to OP.

Reference to Table I indicates that forty percent of a group of seventy-one leases studied in Kansas were sharing fertilizer cost in the same way the product was shared.

TABLE I—PORTION OF COST BORNE BY THE TENANT FOR THE APPLICATION OF FERTILIZER UNDER PROVISION OF THE CROP-SHARE-PLUS-CASH LEASE BY KANSAS TYPE-OF-FARMING AREAS, 1948:\*

Type of farming area	Number of tenants contributing various portions (Percent)							No. of tenants contributing same as crop share
	0	33	40	50	60	66	100	
1.....	..	..	..	21	..	7	1	9
2.....	3	..	..	8	..	11	2	13
3.....	2	..	1	5	1	0	1	7
4.....	4	1	..	11	2	6	3	11
5.....	1	..	..	4	1	5	10	15
6a.....	1	1	..	3	..	5	5	6
6b.....	4	..	..	7	..	6	10	9
7.....	0	..	..	..	..	..	3	..
8.....	1	..	..	2	..	..	5	1
9.....	..	..	..	..	..	1	8	..
10a.....	..	..	..	..	..	..	1	..
10b.....	..	..	..	..	..	..	1	..
10c.....	..	..	..	..	..	..	..	..
11.....	..	..	..	..	..	..	3	..
12.....	..	..	..	..	..	..	..	..
TOTAL.....	16	2	1	61	4	41	53	71
Percent of Total.....	9	1	1	34	2	23	30	40

\* Source—Data from sample mail questionnaire.

Thirty percent of the tenants reporting and nine percent of the landlords bore all of the cost of the fertilizer. Data were not available to test whether the difference in the way these costs were shared had any effect upon the amount of fertilizer used.

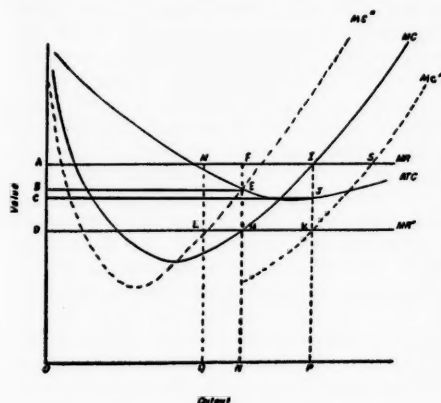
#### *The Adoption of New Techniques*

The crop-share lease may have a different effect upon the adoption of new techniques from those in which all resources are owned

or leased for cash. In general and in the static case the adoption of a new technique may increase, decrease or not affect output.<sup>4</sup> This may be illustrated again by referring to Figure I. Let MC be the marginal cost prior to the innovation. If the innovation is to increase output, the new marginal cost must be lower than MC at output OP (MR is the marginal revenue for the firm). If output is

<sup>4</sup> O. E. Lange, *Price Flexibility and Employment*, (Bloomington, Indiana: Principia Press, 1944), p. 72.

to be decreased, the new MC must be higher than MC at output OP. This is true of MC". To be profitable such a marginal



cost curve must be below the original marginal cost curve for part of the output. In the event the output is not affected, the

new marginal cost must intersect the marginal revenue curve at the same output as the old marginal cost curve. However, it too will lie below the old marginal cost curve for part of the output else it will not be adopted. In the two latter cases there is a "tilting" of the marginal cost curve.

In case of an output-increasing technique a farm operating under a crop-share lease would adopt the new technique if the landowner and tenant shared in the added cost in the same way they shared in the added revenue. There is a different situation, however, when an output-decreasing technique is being considered. Summer fallowing is an example of such a practice. In some areas it will not double the yield over continuous cropping. However, it does not have to double the yield to be profitable since it costs more to plant and harvest two crops than it does to fallow one year and harvest the next. The effect of summer fallowing on the yield of wheat in various parts of Kansas is shown in Table II.

TABLE II—INFLUENCE OF FALLOW ON YIELD OF WINTER WHEAT<sup>1</sup>

Location	Period of Years	Average Yield in Bushels per Acre		Average Diff.	Per Cent Increase Over Continuous
		Wheat fallow <sup>2</sup>	cropped <sup>3</sup>		
Hays.....	1908-46	22.4	16.0	6.4	40.0
Dodge Field.....	1939-47	26.9	15.1	11.8	78.1
Meade Field.....	1938-47	21.5	14.4	7.1	49.3
Garden City.....	1919-47	13.6	5.9	7.7	130.5

<sup>1</sup> Information for this table was furnished by Andrew B. Erhart, Associate Agronomist, USDA, Bureau of Plant Industry.

<sup>2</sup> These were yields on land that was fallowed every other year.

<sup>3</sup> Land cropped continuously.

Any profitable change from an intensive to an extensive practice would bring about a reduction in output. Such a reduction in output would encounter resistance from the landlord. An additional example may be a shift from grain to pasture with a similar effect on milk costs and income for a dairy organization.

In the event society is interested in securing the adoption of an output-decreasing tech-

nique, it may be forced to subsidize the landowner if he is to permit its adoption. Since many conservation practices may be of this general nature, the situation presented may warrant additional attention.

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## Accuracy of the Ratio Method for Forecasting City Population: A Reply

I was very much interested by the article entitled, "Accuracy of the Ratio Method for Forecasting City Population," which appeared in the November 1951 issue of *Land Economics*,<sup>1</sup> particularly because of its reference to *Population Estimates, 1950-2000; Philadelphia-Camden Area*,<sup>2</sup> for which I was chiefly responsible; but also because it treats of the general subject of population forecasting. I would like to reply to that article for two purposes: first, to comment upon its evaluation of other studies and its method of "testing" the procedures used; and second, to explain a little more fully the approach that was used in the Philadelphia-Camden Study and why that method was selected.

My first and most serious criticism of the Schmitt-Crosetti report pertains to its assumption that the ratio method—or any other single method—can be applied indiscriminately to any and all situations with satisfactory results, or that its value can be tested by such indiscriminate application. That is about as reasonable as stating that a size 8-B shoe is of little value because it does not fit a majority of human feet. That Schmitt and Crosetti did make such an assumption is indicated by the fact that they based their final evaluation of the method on the median or mean projection error of all of their experimental areas—which included several cities and metropolitan areas for which the ratio method was obviously not justified because of the absence of consistent secular trends in their historical growth series.

My second criticism is that they seem to have underestimated—and failed to investigate adequately—the amount of careful deliberation and experimentation which preceded the selection of methods finally used in the other studies to which they refer. It is doubtful that any of these methods were naively selected without careful consideration of possible alternatives, even though such preliminary experiments were not described in the final reports.

Finally, it would seem more logical to determine the degree of accuracy of the ratio

method by noting how closely the studies which have been made in various cities did forecast the 1950 population as now revealed by the Census than to set up a wholly independent series of projections of their own.

My criticism of the Schmitt-Crosetti experiments—from such meager information as was included in their report—is that they employed too brief an historical series to successfully minimize the effects of short-term fluctuations and emphasize the long-term trend, and that they under-evaluated the usefulness of the method for cities of relatively steady growth by including in their sample so many others of very rapid or spasmodic growth for which no definite secular trend was evident. The effect of including such areas is clearly revealed in the difference in forecasting errors when measured by the mean in contrast with the median. I would also question that they fully exploited the possibilities of selecting and modifying their formulae to best fit the data for each individual city that was included in their test series. I would expect that some of these would require something other than either the straight-line or logistic curve projections which were mentioned as being used exclusively, and that most of them would call for considerable modification of the standard text-book formulae.

The question of using either the "short" or "long" method is not entirely a matter of ease of application or the accuracy of results.<sup>3</sup> In some instances (the Philadelphia-Camden study for example) it is possible to secure better fit of curves by breaking the process down into successive stages; in addition, it is useful to know how much of the total trend is attributable to broad national or regional trends over which local planners have little or no control, and how much to purely intra-regional or local determinants which conceivably might be modified by planning.

All reference to "size" as such (either in area or population) would seem irrelevant to the question of accuracy of method. In the choice between a central city and its metropolitan area it is a question of a part or the

<sup>1</sup> Robert C. Schmitt and Albert H. Crosetti, "Accuracy of the Ratio Method for Forecasting City Population," *Land Economics*, November 1951, pp. 346-348.

<sup>2</sup> *Population Estimates, 1950-2000, Philadelphia-Camden Area* (Philadelphia: City Planning Commission, April 1948, March 1951).

<sup>3</sup> Schmitt and Crosetti designate as the "short" form a projection of direct ratios between local and national population, and as the "long" form a series of such projections involving one or more intermediate population groups.



whole of a functional community; in the comparison of large and small communities it is a matter of the stability or instability of their economy. It is quite conceivable that the population growth of a central city might be much more even than that of its peripheral environs, hence better adapted to a purely mathematical method of projection—although I should question the logic of using such methods for a part of a community. It is also likely that the ratio method would be more applicable to some rural village in Maine than it would be to Los Angeles.

The question of using or not using the Thompson-Whelpton forecasts of total U. S. population is likewise more than a matter of cost and convenience. Comparable data on life expectancy and international migration are simply not available on a local scale; the facts of internal migration are equally obscure, and even data on current births and deaths are frequently complicated by failure to correct for place of residence as opposed to place of occurrence except by states or for the larger more progressive cities. These problems are greatly magnified if one or more of the population groups under consideration happens to be other than the total population of an official civil division; it is next to impossible to obtain such data for the urban population of a region, state or metropolitan area.<sup>4</sup>

I should definitely agree with Segoe, that a logically justified and properly applied ratio method projection should not yield an error in excess of 10% over a period of twenty years.<sup>5</sup> Barring the introduction of some overwhelmingly important innovation in the economy of a local area it is seldom that the population of any well-stabilized community would greatly exceed that rate of change, and even less likely that so great a change would be in a direction opposite to that which might readily be anticipated.

It is still my firm conviction that the ratio method is in good standing, and probably one of the most useful methods of population forecasting for (1) long-range, long-term trend projections, provided that its use is justified by an adequate historical series showing a fairly consistent secular trend, (2)

total communities, such as metropolitan areas, where population growth is chiefly a function of the local economy in competition with larger or adjacent areas, and (3) if it is implemented with the proper statistical formula which has been properly selected and correctly modified or adjusted to fit the particular data to which it is to be applied. Without such precautions, no method is satisfactory.

The Philadelphia-Camden Area estimates were developed by the "long" form ratio method, involving the fitting of a series of logistic curves to inter-group percentage ratios and their projection to the year 2000. Estimates of absolute population were derived by applying these projected percentage ratios successively to revised Thompson-Whelpton estimates of the total U. S. population 1950 to 2000.<sup>6</sup> The population groups selected were: (1) U. S. total, (2) U. S. urban, (3) Northeastern Region urban,<sup>7</sup> (4) Philadelphia-Camden Area urban, and (5) Philadelphia-Camden total.<sup>8</sup> Historical series for the first three groups were 1840-1940; for the two local groups they were 1870-1940.<sup>9</sup> Alternative estimates, conforming to the Thompson-Whelpton "high," "medium" and "low" series were computed but only the "medium" estimates were published.

While this method—with numerous slight modifications—was one of the first with which we experimented, its selection as our choice for use and publication was made only after exhaustive consideration of and experimentation with other methods of approach. Several other methods (including the "short" form ratio method) yielded about the same results as did our final choice, but less supplementary information on relationships to other than local trends, which we considered significant to planning. Some were discarded either for lack of adequate data for their completion

<sup>4</sup> While the 1942 Thompson-Whelpton estimates were used in our original calculations, later adjustments were made in conformity with the 1946 *Census Forecasts of the Population of The United States, 1945-2000*.

<sup>7</sup> As defined in this study the "Northeastern Region" includes the states of Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, Delaware and Maryland.

<sup>8</sup> The Philadelphia-Camden Area (now designated as the Philadelphia Standard Metropolitan Area) includes the counties of Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania, and Burlington, Camden and Gloucester in New Jersey.

<sup>9</sup> The local series were shortened to 1870-1940 because of county boundary changes for which accurate adjustments could not be made for the earlier dates.

<sup>4</sup> The Philadelphia-Camden study employed U. S. Urban, North-eastern Region Urban, and Philadelphia-Camden Urban population as intermediate groups in its series of projections.

<sup>5</sup> Schmitt and Crosetti quote Segoe on this point, *op. cit.*, p. 347.

or because they did not seem as well justified statistically as others. A few yielded wholly preposterous results when projected over any considerable period of time.

Much of our decision rested in the purpose for which we needed these forecasts. We already had a short-range estimate for both Philadelphia and the Philadelphia-Camden Area for 1950 which had been developed by a special group of statisticians, economists and sociologists set up for that purpose at the University of Pennsylvania.<sup>10</sup> Their methods had been quite different—involving the surviving of the 1940 population, projections and empirical estimates of future trends in births, deaths and migration, and various adjustments for anticipated effects of the cessation of war and the following period of readjustment. The authors of this study did not recommend employing their methods in seeking longer range projections for this area, and their experience in securing adequate independent local data had important influence in our decision to use some form of ratio method.<sup>11</sup>

However, the City Planning Commission could not be content with forecasts of population for only a decade or even two decades in the future. It needed to look ahead perhaps thirty, forty or fifty years for estimates on which to base its program of long-range comprehensive planning—to judge the future demand for permanent land-use allocations, to measure the future need of the city for water, sewage disposal and transportation installations, to determine the adequacy of material constructions such as schools, fire and police stations, health centers, etc., and to estimate future income of the city from which such capital investments must be financed on a long-term basis. Moreover, the growth of the area's population seemed to be slowing down; we needed to know how long it could be expected to continue to increase, what the maximum population would be, when a condition of relative stability would be reached, and what might be expected to happen thereafter. Our projection to the

end of the century seems to have just about covered that period of transition.

Presumably such long-range forecasts need not be too precisely accurate in respect to the actual population of any given year, so long as they sufficiently describe the long-term trend to prevent us from greatly over- or under-estimating the bases for our comprehensive plan. Additional short-range calculations can be made from time to time, and even the long-range estimates revised if ever it becomes apparent that a lasting change of trend has occurred or is about to do so. Planning also can be modified within limits, provided that its basic skeletal structure is not too much in error.

Thus far we see no reason to doubt our method of computing our long-range estimates. Although it has been specifically stated that they are intended to describe the long-term trend rather than the precise population at any given year, it is gratifying to note that our estimate of population for the Philadelphia-Camden Area for 1950 was 3,615,777 while the U. S. Census count was 3,671,048—a difference of -1.5%. In comparison, the revised Thompson-Whelpton estimate of U. S. total population for 1950 (medium series) was 145,960,000 while the Census count was 149,885,592—a forecasting error of -2.7%. If there is any indication of need for adjustments in our local estimates it should involve only a recalculation of estimates of absolute population by applying our same percentage ratios to a higher series of estimates for the U. S. total population. This probably will be done as soon as such a series for U. S. total population becomes available.

In conclusion, I may add that we have elected to employ other methods in our continuing studies of population distribution within the various portions of the Philadelphia-Camden Area (the City and separate counties of the environs) because we feel that other purely local factors are more significant in determining specific place of residence within the area than mere presence here. For these studies we take into consideration such factors as present land use—how permanent it appears to be and whether or not there is opportunity for further development, existing and planned transportation facilities, proximity to places of employment, desirability as a place of residence, et cetera, et cetera, which can be observed at

<sup>10</sup> *The Population of Philadelphia and Environs, and Labor Force and Employment Estimates, 1950* (Philadelphia: Population and Economic Research Advisory Committee, Auspices—Institute of Local and State Government, University of Pennsylvania, 1946).

<sup>11</sup> Estimates from this study for the Philadelphia-Camden Area and the City of Philadelphia respectively were 3,445,000 and 2,023,300. The 1950 Census counts for 1950 were 3,671,048 and 2,071,605, thus showing projection errors in the study of -6.2% for the Area and -2.3% for the city.

first hand, and to some extent controlled by local planning. Reports on some of these later studies will become available as soon as we have made such adjustments as are indi-

cated by the data from the 1950 Census.

Senior Planning Analyst, HARLIN G. LOOMER  
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## Accuracy of the Ratio Method: Rejoinder

THERE are two basic ways of testing population forecasting methods. The first, which may be called the "post mortem" method, consists of following up actual forecasts made in earlier years. The second, which we have called the "ex post facto" method, requires making "forecasts" for a period already past, temporarily disregarding actual developments in order to make a valid test. Our recent paper made use of the second technique.

We rejected the "post mortem" method for several important reasons. First, published reports always give the end-product—their forecasts—but are too often bashful about describing their forecasting methods in any detail. Second, it is virtually impossible to assemble a sufficient number of comparable existing studies to compute a statistically reliable average forecasting error for a given method. Individual forecasts frequently introduce some methodological innovation, apply to a different class of geographical area, cover a different time period, or otherwise fail to achieve comparability with other studies. Uncommon success in a given projection may thus be a result of either the general applicability of the technique used, exceptional judgment on the part of the demographer, or a lucky hit. Without extended study of both the researcher involved in the original forecast and his own version of the generalized method, no real conclusion can be drawn with any confidence. Most existing "post mortem" studies suffer from these limitations.<sup>1</sup>

The "ex post facto" method, on the other hand, readily permits creation of a genuine experimental situation. Any test of methodology must limit itself to a simple, objective and operational definition of the method to be tested; this requirement is satisfied by the "ex post facto" method. Forecasting techniques are subject to many possible modifications; even something so explicit as the logistic curve can produce widely differing results, depending on the choice of years used in

fitting the curve and the exact formula chosen (there are several alternate forms) for this purpose. Frequently, a slight modification of an existing technique may be introduced by an experienced statistician with surprising improvement in the final product. For very practical reasons, a test of methodology must ignore these possible modifications. There are too many alternate ways of applying a given method; to test all of them would exhaust the resources of the testers, the available space in existing journals, and the patience of persons who might read the report. Furthermore, such attention to all possible alternates would be less a test of a given method than of the judgment and ingenuity of the statistician. In consequence, the tester can choose only the best-known and simplest forms of an existing formula, and apply them in as many contrasting situations as are feasible.

These restrictions on the testing of methodology are not as serious as they may seem. A small but well-tested body of operationally-defined forecasting methods is decidedly desirable, and the future development of demographic projection will unquestionably witness decreasing emphasis on the subjective factors so prominent in earlier studies. This situation is somewhat analogous to the growing acceptance of automatic gearshifts in automobiles; true, an expert driver can often exercise more effective control of a vehicle through an old-fashioned manually-operated transmission, but the bulk of motorists will obtain improved performance with an automatic gearshift. Likewise, most demographers will feel far more confidence in a specific, well-tested formula than in their own ability to improvise on an individual basis. This eventual acceptance of standard techniques has been the experience of all the established applied sciences, whether biological, chemical or physical; the social sciences should follow suit.

The above considerations, then, determined the procedure followed by the present authors. We defined the ratio method specifically and conventionally, as a standard forecasting technique. We found it more suitable in some situations than in others—for example, where past growth has been slow, or where the forecast does not extend more than ten years. In such instances the

<sup>1</sup> See, for example, Fred Engelhardt, *Forecasting School Population* (New York: Teachers College of Columbia University, 1925); G. C. Houser, "How Accurately Can Engineers Predict Future Population Growth of Cities?" *The American City*, September 1928; Leo M. Chamberlain and A. B. Crawford, *The Prediction of Population and School Enrollment in the School Survey* (Lexington: University of Kentucky, 1932); and a number of similar studies published in more recent years.

ratio method satisfies the fiduciary limits proposed by a well-known planning consultant. As we hope to demonstrate in a forthcoming paper, now nearing completion, the ratio method far surpasses other *short-cut* techniques, such as arithmetic or exponential projection, the logistic curve, or the method of "comparative cities."

Our chief objection to the ratio method is that it is only a short-cut method, and nothing more. It is a gross oversimplification, a mechanical extrapolation of past trends. It is an easy way to obtain relatively reasonable results, but it lacks the supporting logic and insight underlying the more time-consuming methods.<sup>2</sup> We find it hard to believe that an organization boasting the human and financial resources of the Philadelphia City Planning Commission should ground such a basic, fundamental study in such elementary, superficial methodology. Admittedly, they are in good company, for the U. S. Bureau of the Census has recently based a series of ten-year forecasts at the state level on a variation of the ratio method.<sup>3</sup> Other planning agencies—such as those of the Detroit area<sup>4</sup>—also have shown a marked preference for the ratio method.

Mr. Loomer's other criticisms may be answered briefly. He writes: "... the principal reason for which these methods were selected ... was ... not a forecast of what the actual population would be at any given year in the relatively near future." While admitting the unimportance of annual fluctuations about a long-term trend, we feel that this is actually begging the question; besides, how can one test a method

without comparing its product to actual decennial census data? Mr. Loomer adds that a "well stabilized community [is] the only kind to which this method is adaptable." Obviously true—our article noted a +.65 coefficient of correlation between 10-year forecasting error and the city growth rate in the forty years preceding the forecast—but Mr. Loomer fails to mention exactly what technique does serve adequately for rapidly growing communities. Our use of "too short an historical series upon which to base [our] projections (1890-1930)" was dictated by the very recent development of some of the western cities in our sample; trend data prior to 1890 (or 1910 in some cases) bore little relationship to ratios for more recent decades.

Mr. Loomer's ringing peroration fails to convince us of the ultimate superiority of the ratio method. His first point—that it is "one of the best available for long-term trend projections"—has not been borne out by any systematic and objective investigation, despite some abortive or inconclusive efforts in the past.<sup>5</sup> His second point—its relative superiority "for total communities, such as metropolitan areas"—appears to conflict with our empirical finding that "forecasts for central cities are not demonstrably less accurate than metropolitan area projections." His third and fourth points betray a touching (and unjustified) faith in the efficacy of sheer mechanical extrapolation.

We should like to repeat, with full emphasis, that we regard the ratio method as an ingenious, time-saving, approximately accurate *short-cut* method. In some instances it may be better than even the more complex and time-consuming techniques, although hardly often enough to depend on it. But we must conclude that its popularity among even the most sophisticated demographers is a sad commentary on both the primitive state of modern demography and the somnolent state of its practitioners.<sup>6</sup>

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<sup>2</sup> For suggested alternates, see the use of cohort-survival analysis in Warren S. Thompson, *The Population of the Cincinnati Metropolitan Area* (Cincinnati: City Planning Commission, December 1945), or the application of correlational techniques in Robert C. Schmitt, *The Future Population of Metropolitan Flint* (Ann Arbor: Institute for Human Adjustment of the University of Michigan, July 1947). The latter study has been summarized and reviewed in Victor Roterus and Robert C. Schmitt, "Short-Cut Forecasting for Municipal Purposes," *Public Management*, December 1950 (reprinted in expanded form in *Business Information Service*, U. S. Department of Commerce, April 1951).

<sup>3</sup> "Projections of the Population by States: 1955 and 1960," *Current Population Reports*, Series P-25, No. 56, January 27, 1952.

<sup>4</sup> See, for example, *The People of Detroit*, (Detroit: City Plan Commission, 1946); *A Study of Population and Employment Trends in the Detroit Metropolitan Area* (Detroit: City Plan Commission, 1949); Paul M. Reid, *1970 Population of the Detroit Region* (Detroit: Regional Planning Commission, 1949); and Paul M. Reid, *Population Prospectus for the Detroit Region, 1960 and 1970* (Detroit: Regional Planning Commission, 1950).

<sup>5</sup> It is interesting to note that the U. S. Bureau of the Census has announced forthcoming publication of its own testing of forecasting methodology at the state level (*op. cit.*). The present authors, as mentioned earlier, are conducting a comparative test of short-cut methods at the city and metropolitan level.

<sup>6</sup> For further comment on current population research, see Robert C. Schmitt, "Demography and City Planning," *Social Forces*, March 1952.



## **An Inter-American Housing Research and Training Center**

The Pan American Union, as General Secretariat of the Organization of American States, has completed the preliminary work for the creation of an inter-American housing research and training center which will be located in Colombia, with headquarters on the campus of the National University in Bogota. This is one of the projects of the Organization of American States Program of Technical Cooperation. The technical organization of this Center is under the direction of the Housing and Planning Division of the Pan American Union in Washington. Since 1945 that office has been carrying on research and providing technical advice to national and municipal authorities of Costa Rica, El Salvador and Guatemala. It has organized and directed the Round Table on Housing and City Planning in the three Regional Seminars on Social Affairs in the last two years in Quito, San Salvador and Porto Alegre. It has advised governments on reconstruction work in regions affected by earthquakes, as for example, in the provinces of Cotopaxi, Tungurahua, and Chimborazo of Ecuador (where a special Mission is now operating) and on plans for the reconstruction of Cuzco.

The choice of Colombia for the Center was made after extensive consideration of its possibilities. The Center is being installed in one of the buildings on the campus of the university, where it will have at its disposal laboratories, library, and dormitories. Substations will be established in other parts of Colombia; thus full advantages will be taken of the variety of geographic and climatic conditions in that country and it will be possible to construct experimental buildings and to use a variety of materials especially suited to characteristic conditions in Latin America.

The Center will study construction methods. It will make, without expense to the participating countries, experiments and tests with native products. Studies will be carried on in the field of social and economic research, considering the interrelationships of housing (both urban and rural), slum clearance, development of neighborhood units, and creation of new towns. The organization of communities and their layout for satisfactory living necessarily involve the complementary activities of social service, legislation, finance, administration, etc. These educational activities will be directed by a selected group of technicians who will devote their time to the work of the Housing Center.

Inasmuch as the studies on housing have required a certain amount of specialized work in order to give fuller attention to all the aspects of the subject, it has been considered necessary to give professionals an opportunity to do postgraduate work. The Center offers scholarships which will be distributed among the Member Nations of the Organization of American States that have taken an interest in the project. These scholarship students will receive active training for a period of ten to twelve months.

Another benefit which will derive directly from the Center will be provided by the Documentation Service. Through it, interested governments and professionals will be furnished information on the activities of housing agencies, on experiences, and on basic knowledge concerning housing and social education related to homes. Moreover, the Documentation Service will issue reports on experiments with materials and techniques that would be useful and easy to apply in the several countries. It will guide the selection of types and forms of construction and will answer inquiries arising from the special needs of a region. It will send out bibliographic references, cards, translated material, bulletins, etc.

In preparing this Technical Assistance project, the Committee kept in mind that its purpose was to help the republics of the hemisphere to solve their common problem of housing. To accomplish this it was thought that the improvement of traditional methods of construction, the more adequate use of available materials, the development of systems of local cooperation, and better methods of financing would contribute directly to lowering the costs of housing construction.



## Book Reviews



*The Power Policy of Maine.* By Lincoln Smith. Berkeley and Los Angeles, California: University of California Press, 1951. pp. 344. \$5.00.

The power policy of Maine is: Maine power for Maine people. Lincoln Smith, in this book, records for us the development of the policy from the Great-Pond Ordinance of the Massachusetts Bay Colony (1641) to the Fernald Law (1909), which is still the statement of the power policy of Maine. He considers the question of the constitutionality of the Fernald Law, some of the effects of the law on the economy of the state, and indicates some modifications of the policy which have been considered and rejected. The book is not, nor is it intended to be, a complete discussion of the effects of the particularism reflected by the policy; and, unfortunately, it is not as complete as it might be in a discussion of the merits of alternative policies.

The basic reasons given for the passage of the Fernald Law are: (1) keeping the power within the state would attract new industries, (2) keeping the power within the state would keep out speculators of other states, and (3) keeping the power within the state would tend to extend rural electrification. The results of the law have been to retard the development of power resources in Maine and to prevent their use by other New England states without having extensive new uses developed in Maine. Rural electrification has not proceeded in Maine as quickly as in other states, but this can be explained more accurately as a result of the geography of the state rather than the operation of the power policy.

In the light of recent United States Supreme Court decisions, there is no doubt that the Fernald Law would be held to be unconstitutional, and the power policy of Maine would fail on two grounds: (1) generated power is not a natural resource which is subject to conservation measures by a state and (2) the prevention of interstate commerce is just as much interference as

discriminatory regulation of existing interstate commerce. But the point to the history recited by Mr. Smith is that a question of constitutionality is unlikely to arise. The Fernald Law is more important as an indication of the temper of the people of Maine than as a legal obstacle. Even if the law were held to be unconstitutional, there are undoubtedly other difficulties which could be placed by a hostile legislature and populace in the way of anyone wishing to export power from Maine. Perhaps the only situation which would force a decision and at the same time force acceptance of the decision by the people of the state would be a national emergency requiring the use of the power in other New England areas.

The conclusion which Mr. Smith reaches that "the business of generating and transmitting power, properly safeguarded, would mean large investments, taxable property, and more employment" depends on the two words "properly safeguarded" for acceptability in the state of Maine and the safeguards which he considers in earlier chapters—charter controls and regional compacts—are found in those chapters not to be safeguards at all. "The author does not like the Fernald Law and public power" but he has no explicit alternative to offer. The book is a recital of political and legal history with a mention of some indefinite sort of regionalism as the solution; but as Mr. Smith says, "This suggestion is not a new contribution to thought."

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*History and Policies of the Home Owners' Loan Corporation.* By C. Lowell Harriss. New York: National Bureau of Economic Research, 1951. pp. 204. \$3.00.

Mr. Harriss presents a scholarly contribution to the literature on real estate financing. From the viewpoint of an economist he tells why the HOLC came into existence, what

policies it adopted, what it accomplished and why it had a demise.

Why the HOLC came into existence is explained in terms of the needs of the families living in owner-occupied homes in the non-farm areas of the United States during the period of the depression.

What major policies the HOLC adopted were determined by the authorization granted by Congress. In general, the policy was aid to the small home-owner whose mortgage was in default. Funds for the purpose were obtained from a non-interest bearing grant from the United States Treasury and from the periodic sale of HOLC bonds guaranteed as to both interest and principal by the Treasury. Once the organization was established and became a going concern, it obtained revenue from sources such as interest on loans to home owners and from repayment of principal on mortgages.

What the HOLC accomplished is measured in terms of its economic services to home owners. More than a million families were aided to the extent of \$3.1 billion dollars. One out of ten families owning small non-farm homes were serviced; in terms of mortgaged homes one out of five such families were helped. The average loan, \$3,039, indicated that the policy to aid the small home owner was carried out.

Why the HOLC had a demise in the spring of 1951 is explained in terms of congressional pressure. As early as 1944 Congress asked the organization to prepare a plan for its liquidation. Because the HOLC was able to prove that immediate liquidation was undesirable, Congress accepted the principle of liquidation on an orderly basis over a period of time. In the course of years, a marked improvement in economic conditions plus good manage-

ment on the part of the HOLC made the organization's mortgage portfolio attractive to private lenders. Furthermore, the HOLC had been created merely as an emergency agency.

Most observers had expected the HOLC to lose money. In contrast, measured in terms of standards which enabled the organization to benefit from some governmental assistance, it ended its existence as a financial success.

Since this book is one of the publications of the National Bureau of Economic Research, the author stresses primarily the economic factors involved. Mr. Harriss states: "The HOLC as a study in political economy has not seemed appropriate for inclusion here, except indirectly and by implication. The history of the HOLC may be no less significant as a study in political economy or public administration than as a study of real estate financing." This reviewer agrees with Mr. Harriss but regrets that this additional material was not developed. Quite probably also, the history of the HOLC in terms of the social and philosophical factors involved would present an equally interesting approach. They too, in a study primarily economic could be included only indirectly.

A case study is an area of research in which integration among the various disciplines might well be effected. The results attained from such a procedure would be a multi-dimensional "profile." Two questions seem pertinent here: to what extent, if at all, would this multi-dimensional approach have been desirable? Further, does not the title itself *History and Policies of the HOLC* suggest such an approach?

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*Editor's Note.* Two reviews of the following book title were received in the editorial office. They each express divergent viewpoints and therefore—because this *journal* and its Editorial Board believe that public controversy is a vital medium of adult education—both reviews are printed below.

*Two-Thirds of a Nation: A Housing Program.*

By Nathan Straus. New York: Alfred A. Knopf, 1952. pp. 281. \$4.00.

Almost a decade ago Mr. Straus wrote a trenchant little book summing up his experience and guiding principles as first administrator of the U. S. Housing Authority. The public housing and slum clearance program was controversial, and his arguments and factual data were therefore arranged primarily to attack and explode what he called *The Seven Myths of Housing*.

Since New Deal days we have had a turbulent succession of housing policies and programs: emergency war-workers' housing; homes for veterans, equally "emergency"; insurance company housing; all-out federal backing for speculative builders; cooperative and pseudo-cooperative efforts; shifting policies due to the new defense program; and, after a five-year battle, the Housing Act of 1949 with substantial aid for low-rent public housing, and also for slum clearance and private redevelopment. With all this activity no one could claim that our housing problem has yet been solved: indeed, its ramifications seem more complex than ever.

In his new book Mr. Straus attacks some of the housing "myths" prevalent in 1952 with admirable vigor and clarity and with able support by several contributors of special chapters.

Low-rent public housing, although moving forward, is as controversial as ever. But the old pseudo-factual arguments of the opposition have been replaced largely by the scarcetactics of crying "communism" and "socialism." Mr. Straus describes in concrete detail the all-out effort of the real estate lobby to stop public housing at the local level, and Lee Johnson contributes a useful chapter on "The Housing Act of 1949—and Your Community."

A new issue that has come over the horizon in the past decade is "middle-income" housing. And effective (if somewhat simplified) documentation supports Mr. Straus'

claim that neither prefabrication nor FHA-insured homes built by speculators can solve this problem. The virtues of home-ownership may not be quite as mythical as he claims, nor the failure of FHA quite as abject, but there is certainly ample need for progress in meeting the varied housing needs of average American families. The New York state program is described, and Chester Bowles has written a useful chapter on the unique Connecticut effort, and on the potential role of the states in housing policy. Somewhat more emphasis might have been given to the need for a bona fide cooperative housing program, and the conditions for its success.

The push for large-scale slum clearance and urban redevelopment has greatly increased during the past decade. But wholesale clearance without an adequate positive housing program on vacant land, without effective metropolitan planning, and without defensible clear-cut policies re "density" on the one hand and "decentralization" on the other, has its dangers. Mr. Straus predicted some of the pitfalls in 1944, and reinforces his arguments in the present book.

Eric Bird contributes a pertinent chapter on the thoroughly non-partisan history of British housing policy, and how it led to broader metropolitan and regional planning. An admirable chapter by Charles Abrams on the race-relations aspects of housing and planning policy emphasizes what is perhaps the most important single issue that has recently come to the fore in the housing field.

With all our hectic efforts to "solve" the housing problem, we sometimes fail to see the basic issues. Mr. Straus and his collaborators pose some of these issues in highly provocative form, and anyone interested in housing progress will find this book stimulating.

CATHERINE BAUER

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*Two-Thirds of a Nation* (see above). **Review by Leo Grebler**

This is the kind of book for which it is difficult to find an adequate level of review. It is obviously not intended to be a scholarly contribution. The author presents, and seeks to support, an action program. At the same time, the book ought not to be written off as a

piece of propaganda. The book is offered by the publisher as a "guide for the home-seeker, the public official, and the civic-minded citizen" and must be evaluated on this criterion. Moreover, it is literature which, for better or worse, may be widely used by college and high school teachers in sociology, civics, and similar courses. On this basis, the reviewer's principal question goes to the adequacy of the analysis from which the author's program is developed.

Mr. Straus' main thesis is that two-thirds of American families need help to achieve a decent housing standard, help that the market, even with existing federal aids, does not provide and that can be furnished only by government. This thesis produces the book's dramatic title but is another variation of a familiar theme, only that the proportion of those in "need" is now stepped up to two-thirds, including large numbers of what are usually considered middle-class families. The thesis is based on the premise that decent housing can be found only in new construction, implies that existing housing occupied by two-thirds of American families is not decent or is too expensive, and stipulates that new housing ought to fit the pocketbooks of families in all income groups. These assumptions are largely taken for granted rather than examined by the author. The question as to the extent to which existing facilities do meet, or can be made to meet, standards of decency is dismissed rather than explored. Yet, no matter what housing program is adopted, the large majority of people will always be condemned—if it be condemnation—to live in housing meeting the standards of yesteryear.

In describing the plight of new middle-income families in search of housing, and the differences between rents for existing and new dwelling units, the author chooses to ignore altogether the possible effects of rent control on differentials in housing expenditures between those who occupy controlled units and those who have to scramble for uncontrolled housing.

Mr. Straus supplies but sketchy and second-hand evidence for his contention that postwar housing construction has been only for the upper third. It so happens that fairly comprehensive data are available on the subject, but the reader of this book would not know about them. Among others, the BLS surveys in 15 metropolitan areas showed that 50

percent of the purchasers of new houses in 1949 had incomes of less than \$4,000. This income group represented 61 percent of all urban families. The Consumer Finance Surveys and FHA statistics furnish a great deal of information which is by-passed by Mr. Straus. The data may not indicate the most desirable distribution of new housing, but they do not seem to justify the author's vast generalizations.

Some of the points made by Mr. Straus are well taken. In this category are his critique of FHA's practices in promoting rental housing under Section 608 of the National Housing Act; his review of the incomplete monthly home ownership expenses that are advertised with FHA's tacit approval; and his analysis of the shattered hopes in prefabrication as an early solution of the building cost problem. Space standards in some of the new housing have indeed been reduced to dangerously low levels. Numbers of home owners have indeed been induced to overcommit themselves. But it is the complete absence of discriminating judgment and perspective that mars the book's value as a guide to anybody.

The author delights in the "perpetual crisis" approach. Doubling-up, he says, is as bad as at the end of the war (when it was very low, what with millions of soldiers away from home), and overcrowding is as bad as ever. He fails to add that in 1950 doubling-up was much lower than at the postwar peak of 1947 or so, that it was proportionately not any greater than in 1940 and 1930, and that much if not all of the wartime backlog had been removed—a remarkable accomplishment within a few years. The 1950 Census findings showing a reduction of crowding over 1940 are ignored, as are other indexes of some improvements during the past decade, although these findings were available at the time of writing. The statement (p. 6), "at no time in the twentieth century has our annual production of homes kept pace with the growing population. . ." flies in the face of available data on the relationship between population, households, and dwelling units—and no evidence is brought to refute the data. This reader got so thoroughly enveloped in Mr. Straus' gloom over things getting worse and worse in housing that he had the nightmare of American millionaires in a few years being the only ones who could afford decent housing without help—and what with high

income taxes he could not even be sure of that upon reconsideration the next morning.

In addition to continuance of the public housing and urban redevelopment programs, the author proposes 3-percent mortgage loans on long terms for housing cooperatives; direct public financing without cash subsidy for families with incomes too high for admission to public housing projects; government efforts to improve quality and design of construction; improvement of building codes; investigation and reduction of utility costs; and assessments that relate real estate taxes to services rendered to occupants. His confidence in the cooperative enterprise as a solution for middle-income home seekers seems exaggerated. And his art of partial argumentation is illustrated by his claim that families in cooperatives would save in maintenance by performing services usually covered in rent (p. 113), while he denies such an advantage for individual home ownership (pp. 90-91). Moreover, if individual ownership impedes mobility as much as Mr. Straus contends, it is not clear why cooperative ownership entails no similar handicap.

The author advocates also 3-percent mortgage loans for home owners. His statement in this connection that risks in home mortgages even without government insurance are almost negligible will astonish those who remember the thirties. The cost of servicing small home loans is ignored—one might ask the question how Nathan Straus, the investor, would react if offered 100 mortgage loans of \$8,000 each at 3 percent as against \$800,000 worth of triple-A bonds with their current gross yield of 2.95 and negligible servicing costs. The reduction of monthly housing costs through lowering of financial charges is advocated on the assumption that financing terms have no effect on purchase price, which is false for sellers' markets.

On the whole, one wonders whether it is not time for housing literature to move on to a more mature level of discussion. Such a discussion would be as conscious as Mr. Straus of the consumer's plight, of the deficiencies of market operations, and of the need for intelligent government action. But it would base the need for action on a more comprehensive and dispassionate analysis of conditions and would encompass all relevant facts. It would also deal with the unavoidable question of social priorities for housing aids to various income groups, in view of the fact

that only an infinitesimal proportion of the need for slum clearance and improved housing for the lower third has been met.

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### Addendum from Catherine Bauer

*Land Economics* has kindly permitted me to comment on Dr. Grebler's review, which was sent to them after they had received the review of Mr. Straus' book they had requested from me.

Dr. Grebler is right that *Two Thirds of a Nation* is hardly a "comprehensive and dispassionate analysis." But is this what the author set out to do? Mr. Straus is a distinguished liberal publicist with considerable practical experience in the field of housing reform. He wrote a brief and lively book to highlight certain issues which he thinks require public action. To the extent that he exaggerated some of his points he weakened his case. But the basic problems he attacks are nevertheless all too real. Both the slums and the housing shortage are still with us. And surely the FHA-VA system is not the sole ideal answer to the housing needs of middle-income families (even if its weaknesses have haply been somewhat masked by an inflationary economy.) I do not have to agree with him entirely to welcome positive proposals and stimulating debate on these issues.

In one fundamental respect, moreover, Mr. Straus' little book is both more accurate and more "mature" than much of the work of the academic researchers in this field. He assumes that the American housing business is now for better or worse a thoroughly "mixed" enterprise, quite as much due to the demand of private builders and lenders for public aid and support as to the zeal of housing reformers. And he therefore looks largely to public policy for solutions. On the record of FHA, VA, HLBB, PHA, and the rest, this seems both an obvious assumption and a logical deduction.

But the academic economists still tend to ignore this situation. Even Dr. Grebler's recent monograph for the Social Science Research Council, useful and painstaking and liberal-spirited though it is, seems unreal at many points because he applies such terms as "market" and "demand" in their classic



sense to an enterprise which is anything but *laissez-faire* in its dynamics. For many years the volume, the price, and the market-spread of new housing have been largely dominated by federal policy, which is shaped in turn by a multitude of national political-economic forces. And even if there is a curiously euphemistic effort by FHA and the home-builders to *simulate* a "free" market, the professional economists are the last people who ought to be fooled by it. C. BAUER.

### THE AMERICAN STUDIES ASSOCIATION

Here is a new organization, beginning its first drive for members this spring. When we consider the large number of societies already in existence, any new one must answer some forthright questions. The readers of this *journal* might well ask at least two: What point is there, in general, to founding a new society, and of what particular use can the new society be to a student of land economics?

We all admit that there are many professional organizations, too many perhaps. But the ASA was not created just to add to their number. It was founded to do something that no other society was doing, and that was to facilitate the study of the American past and present on an inter-disciplinary basis. The primary aim is to achieve a better understanding of our country. The most important means is through communication across the established disciplines. Besides appealing to the person who has a general interest in American culture, the ASA should be useful for the college teacher whose interest goes beyond the limits of his particular department and the scholar who is doing interdisciplinary research on an American topic. There are others but these are the kinds of potential members most apt to be found among the readers of *Land Economics*.

In both teaching and research, the currents of specialization have been and surely will continue to be strong. How strong they are, though, we sometimes do not realize until we make an analysis. The historian, for example, is apt to claim that his discipline takes in everything anyway, so why bother about this interdisciplinary business? Yet if we analyze both research and teaching in American history, we cannot escape the conclusion that there are more courses and more books specializing in two parts of the field of

American history than all the others combined. They are American political and military history. American economic history, it may be suggested, runs a poor third—and before the days of Charles Beard ran much worse than that. The contributions that the study of land economics can make to historical interpretation are certainly far from being understood by most historians. There are many more related kinds of information than the average historian, writing, characteristically, about Lincoln and the Civil War, realizes. Demography and human ecology are fruitful examples. Yet the historian should not be used as a whipping boy. All of the disciplines have their limitations; so do all of us as practitioners within them.

Through a wider interest in American culture by way of the relationship of disciplines, the reader of *Land Economics* can add a new dimension to his own teaching and research. The knowledge from one discipline can well help to buttress another. We are probably a little more accustomed to admitting that fact in the way we teach than we are in our specialized research. An unusually good example of what can be done through correlated research is offered by a monograph which came out recently. Called *Architecture and Town Planning in Colonial Connecticut* and written by Professor Anthony Garvan of the University of Pennsylvania, who is a member of the ASA Council, it has been widely praised. Lewis Mumford, for instance, thought it an excellent work—and one of the things that make it so is the constant awareness of the relation of Connecticut's town planning to the economics of the land.

How will the ASA operate? Through regional societies. Through joint sessions with previously established professional societies. And through the endorsement of the *American Quarterly*, the magazine of American civilization, as the ASA's journal and the printing of the ASA newsletter (called the *American Calendar*) both within the *American Quarterly* and as a separate leaflet. In addition the ASA will organize conferences on specific topics from time to time. Regional societies have been formed or will be formed in Michigan, Minnesota, Missouri, upstate New York and New York City both, Ohio, the Pacific Northwest, the Rocky Mountain area, and Texas. Joint sessions planned for this year to date are four in number. The ASA-Mississippi Valley Historical Association

has as its topic "Pragmatism in American Social Thought." The ASA-American Sociological Society joint session will be on "History vs. Sociology in the Study of Urbanism." The topic for the joint sessions with the Modern Language Association and the American Historical Association will be the same for both sessions, "The 'Little Renaissance' of 1912-1915." All programs are interdisciplinary. The *American Quarterly* offers publication most readily to articles that

go beyond the bounds of a single discipline.

The ASA has, some of us are convinced, a good many potentialities. For the reader who wishes further information about the society, a note sent to the Secretary-Treasurer, Mr. Robert Land, Library of Congress, Washington, D. C., will bring it.

CARL BODE, PRESIDENT, AMERICAN STUDIES  
ASSOCIATION

*The University of Maryland*